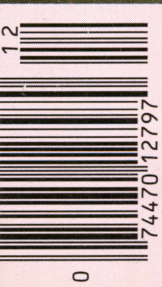


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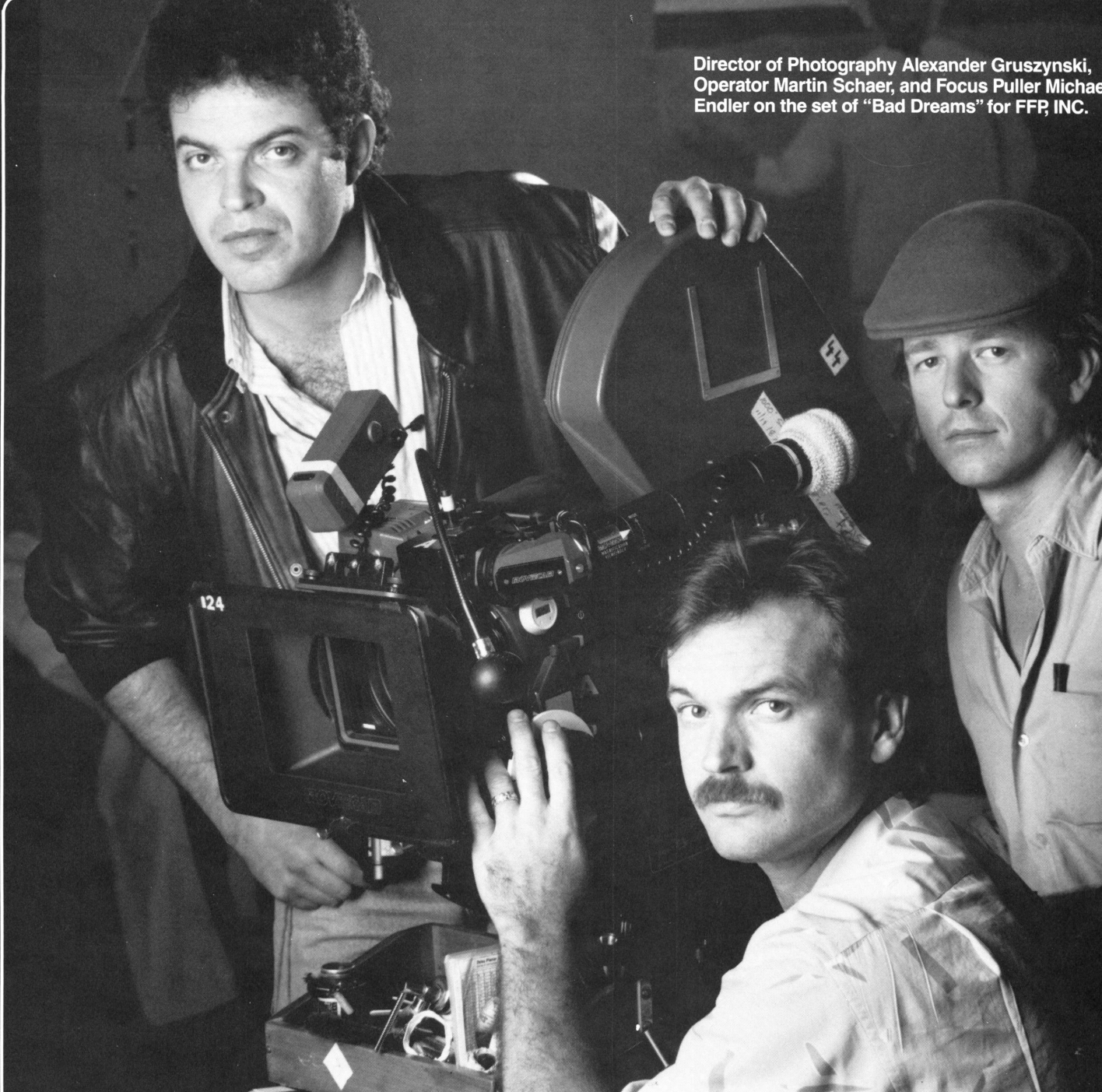
1988 Visual Effects Sampler

# American Cinematographer



*My Stepmother Is an Alien*—Comic Fantasy  
Towering, Explosive Effects for *Die Hard*





Director of Photography Alexander Gruszynski, Operator Martin Schaer, and Focus Puller Michael Endler on the set of "Bad Dreams" for FFP, INC.

# QUIET RELIABILITY.

Director of Photography Alexander Gruszynski was wrapping his sixth film shot with Moviecam. And once again he was completely satisfied.

The camera gear had run smoothly for eight weeks of continuous shooting, under every condition. Says Alexander, "Last winter we shot outside with a windchill factor of  $-30^{\circ}$ . Then we worked in the damp Louisiana bayous with temperatures in the 100's. I am delighted that a camera with such sophisticated electronics is consistently reliable, even in such extreme weather."

On the sound stage, Alexander peered through the Moviecam Super America camera. He explained, "What's

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crucial to me is that Moviecam accepts 'PL' mounted lenses (in this case Zeiss primes). Of course sound level is also extremely important. And the Moviecam is always so incredibly quiet which makes such a difference to the whole process of shooting."

It takes more than a reliable and quiet camera to satisfy Alexander Gruszynski. Backup and support are just as vital. For Gruszynski, Moviecam Super Rental has always come through. That's why he's called them before. And that's why he'll call them again.



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**On Our Cover:**  
Kim Basinger in  
composited  
frame from *My  
Stepmother Is  
an Alien*

**Contributing Authors:**  
Ron Magid  
Nora Lee  
Paul Mandell  
Douglas Turner  
Lynn Carpenter



# Dave Knox



**CINEMATOGRAPHY • STEADICAM**

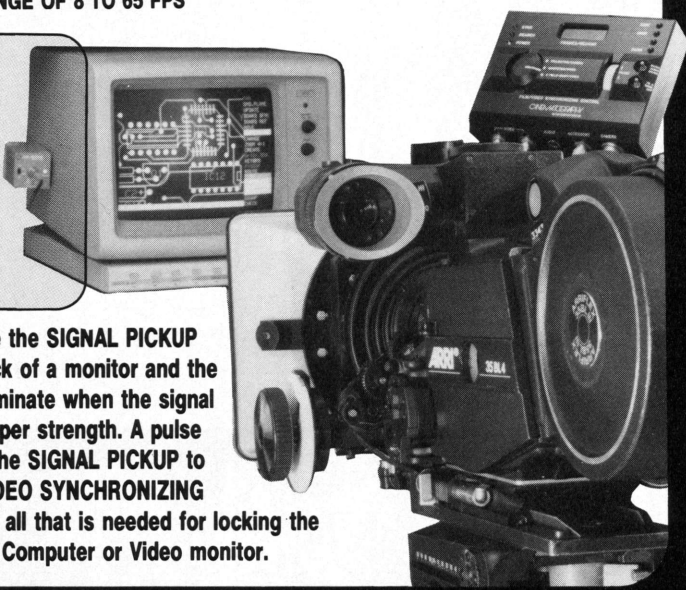
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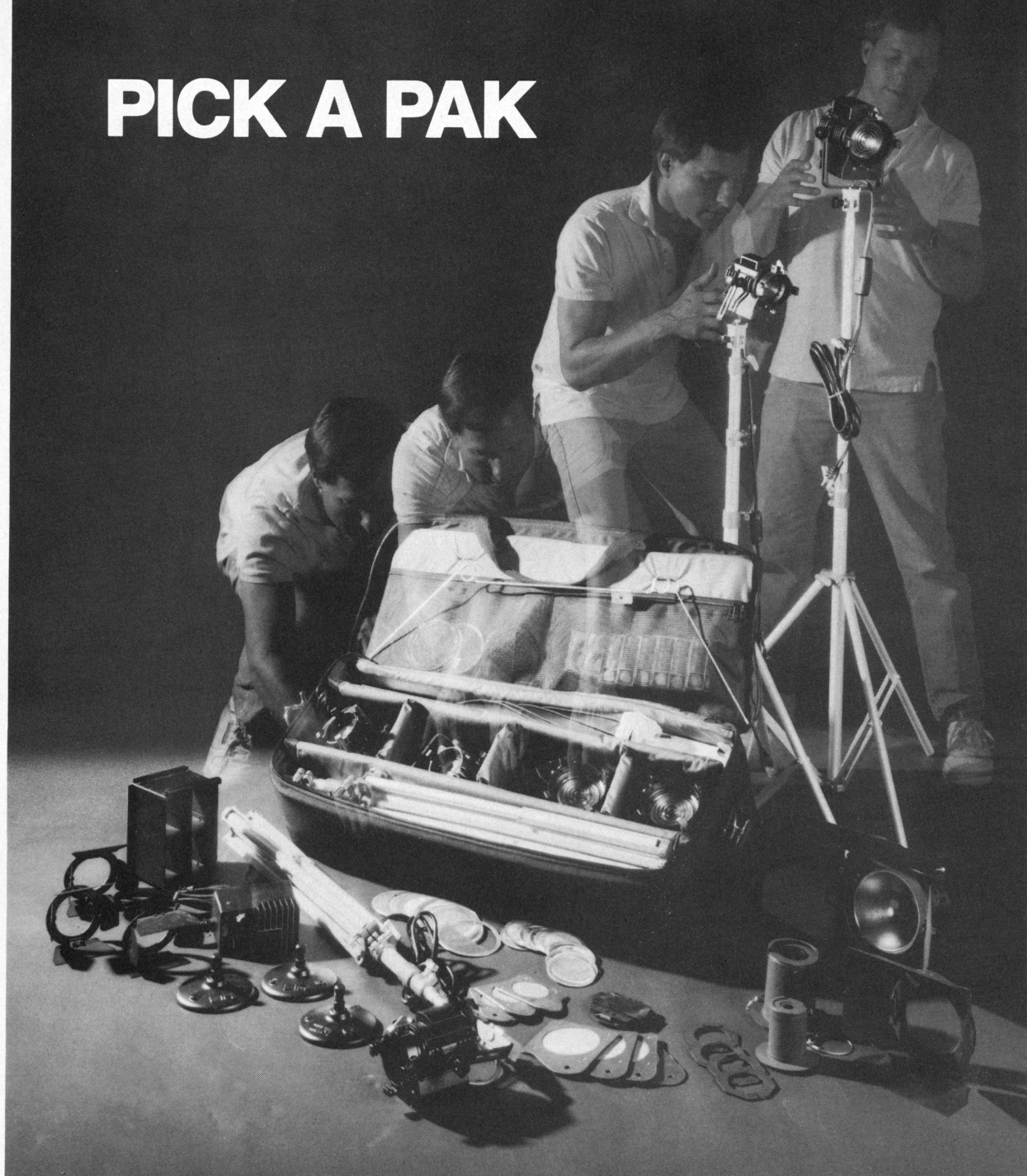
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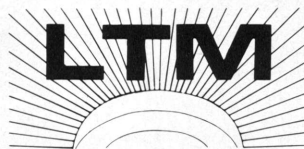
One Pepper for punch, another for fill, and then the Fresnels for that incredibly smooth field. A barndoor here, two tiny scrims there, a snoot, and some gel to color that hair.

On stands and on clamps, in 10 minutes flat, that PEPPER PAK is totally unpacked.

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## American Society of Cinematographers

The American Society of Cinematographers is not a labor union or a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initials ASC after their names. ASC membership has become one of the highest honors that can be bestowed upon a professional cinematographer, a mark of prestige and distinction.

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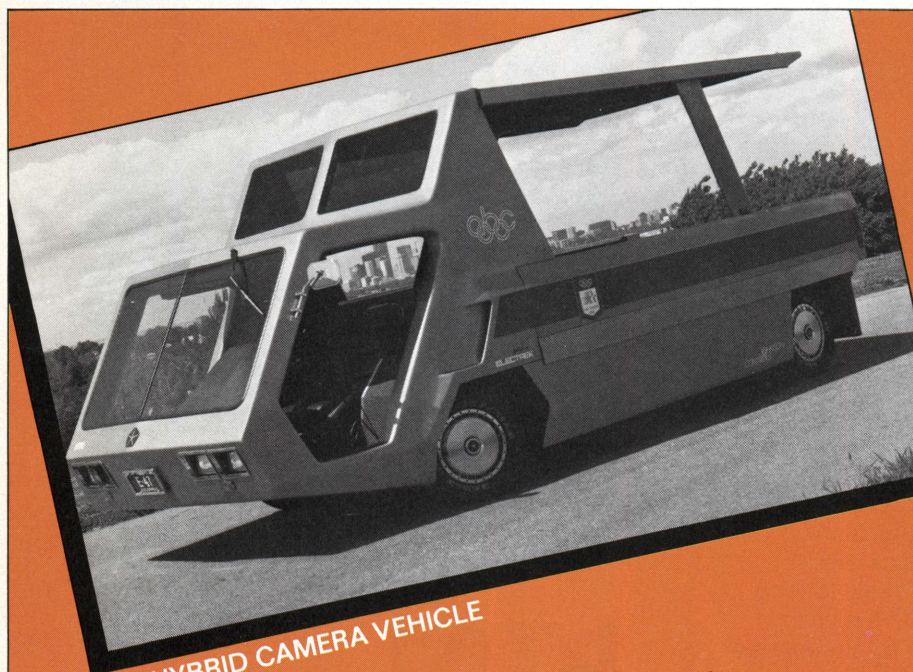
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# Another unique custom tool: Our new Clairmont Strobe

Inexpensive, compact, lightweight, flexible. Easy to use, needs no special operator. Runs on 110V. Syncs automatically at any speed with our 35BLs, 35-IIIs, 16SRs, Frieses, Mk IIs.

**F**or a *really* sharp image of a moving subject, you need a short exposure time. At 24 fps in normal light, your exposure is about 1/50 second, of course. With the Clairmont Strobe, it's 1/50,000 second.

**Exposure is same at any camera speed: 1/50,000 second**

No matter what your camera speed, the Strobe exposure is the same. You can change speed during a shot—no need to change the iris. Except for “disco” effects, there's always one Strobe flash per frame. Flash duration is always 1/50,000 second.

In fact, the Clairmont Strobe fires *twice* per frame—once for the film while the shutter is open, once for the viewfinder while the shutter is closed. We call that one flash sequence per frame.

**Automatic sync to camera shutter**

The slowest Strobe speed is one flash sequence every sixteen frames. The fastest is the maximum speed of our cameras—125 flash sequences per second. Automatically synced by the camera's electronic shutter pulse.

**Seeing each individual burst of water from a pulse shower head**

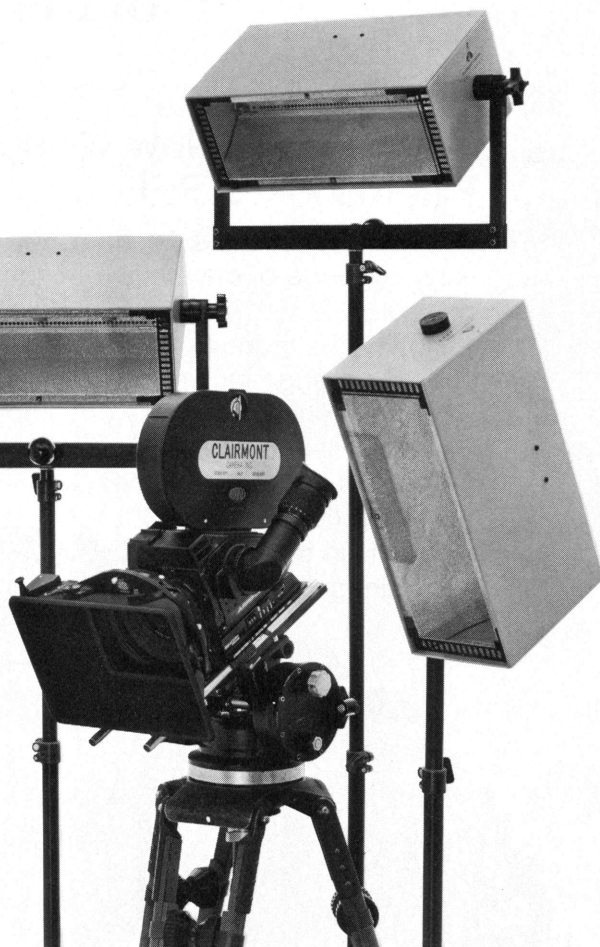
At 1/50,000 second and 120 fps, you can easily see the individual water pulses from a pulsating shower head. At 120 fps with regular lighting, the water would be hopelessly blurred. At 1,000 fps, the pulses would be sharp. But the action would be so slowed down that it would lose reality.

The important point is this: strobe lighting is for super sharpness; ultra high speed is for slow motion. They're not the same.

**“Liquids come alive,” says Ralph Chandler**

Cameraman/Director Ralph Chandler of Star Turn has used the Clairmont Strobe on several table-top commercials. Backlit champagne gushing out of the bottle, for example, against a black velvet background. “Strobe light makes liquids come alive,” he says.

“You can really see what's going on, in sharp detail,”



Strobe Lampheads are both lightweight and compact. Small size lets you position heads precisely and get in close for big-source effect. Lampheads can be mounted horizontally or vertically.

says Mr. Chandler. “And with strobe light, you don't need to use ultra high speed to get that effect. So you can show more in the same screen time; and the action keeps its energy.”

**Speed change during shot**

An example: Camera running at 24 fps. Hand

holding box of cornflakes enters frame. Zap camera to 120 fps. Hand begins to pour cornflakes. When bowl is full, hand stops pouring. Camera back to 24 fps. Hand and box exit frame. Exposure throughout is 1/50,000 second. No blur.

Incidentally, it's an M.O.S. system. The Strobe lamps



and the electronics cooling fans make noise—somewhat less than a 35-3 running at 120 fps. Cool running means you can shoot, for example, ice cream. And taping gels is no problem. Strobe color temperature is 7,000° Kelvin.

It's the *Strobe* that gives you the blur-free image, not camera speed; you can use speed for *other* effects.

Director of Photography Larry Boelens used a Clairmont Strobe for a Budweiser commercial. One of the series in which the customer asks for a Light and gets all sorts of surprise lighting effects instead of a beer—until he learns to ask for a *Bud Light*.

#### Budweiser Disco

"In this one, the storyboard called for a disco scene with strobe lights," says Larry Boelens. "The agency copywriter didn't know that regular strobes wouldn't sync with the camera. And yet those strobe lights were the central feature of the commercial."

**"Without the strobe, we couldn't have shot it as written," says Larry Boelens**

"Without the Clairmont Strobe, we couldn't have shot it as written. Just splicing in flash frames wouldn't do it, in this case—we needed to see the strobe lights hit the actors and create their own shadows."

#### Needed no familiarization

"I had never used this strobe system before," says Mr. Boelens. "So I called Denny and he explained it to me on the phone. Seemed perfectly simple. So we shot a test to find out what rate we wanted. (One strobe every five frames.) That test was all the familiarization we needed."

#### Five or six times less expensive

"The big advantage of working with the Clairmont Strobe," says Ralph Chandler, "Is that the shot can end up costing five or six times less. You spend at least a half day on one high-speed or strobe setup. And you always need to shoot a test. That's *two* half-days."

#### Fewer people, less equipment

"Usually, I'm already budgeted for one crew and the Arriflex. I find I save by not hiring another operator for the high-speed camera, by not renting that camera, by not renting the high-speed strobe (which costs more) and by not hiring the operator that comes with it. I also save by using less film. High speed *eats* film."

#### \$7,000 or \$8,000 extra for one shot

"And the Clairmont Strobe is faster to work with," says Mr. Chandler. "When you add all these things up for the two half-days, the high-speed rig and crew can cost you \$7,000 or \$8,000 extra. That's for *one shot*."

## Sharpness you can't get any other way:

### Specs and Facts

The Clairmont Strobe system Lampheads measure 17 × 10 × 7 inches and weigh 10½ pounds. Each one comes with a light-stand yoke and a Powerpack. The Powerpack measures 16 × 12 × 6 inches and weighs 46½ pounds. Its suitcase-type handle makes it easy to carry.

#### Use any number of Lampheads

The usual setup is two or three Lampheads—but people have used as many as eight. They all fire in sync automatically. Each Powerpack/Lamphead runs on 110 volts, draws 10 amps and delivers 250 foot-candles at 4 feet.

#### Sync Control

The Sync Control box automatically relays the sync signal from the camera. It has settings for flash-sequence rate (marked in frames), film-and-eyepiece or film-only, 35mm or 16mm, master on/off.

#### Flexibility

To see the effect, you can also switch each individual Lamphead on and off while the Strobe system is running but the camera isn't. And there's a low-power switch on each Powerpack that gives you one stop less.

#### Preview Box for lighting setup

With the Preview Only box, you can run all the Lampheads at 61 flashes per second, without running the camera. At that speed, the strobe lights look almost like regular AC light. You can look through the camera and position the Heads for the effect you want.

#### Automatic Lightmeter

The Clairmont Strobe system also comes with a digital Lightmeter. Its LCD readout gives you incident readings in f/stops, while you run the system with the Preview Box. You program the film ASA into the Lightmeter—everything else is automatic.



Sync Control, Preview Box and Lightmeter are small, easy to use. Cool running makes it simple to shoot ice cream.

# CLAIRMONT CAMERA

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## What's New

### Emmy For Gyrozoom

Schwem Technology has received an Emmy award in recognition of outstanding achievement in "lens stabilization technology for live cameras." The engineering award was presented to Arnold J. Schwemin, co-founder of Schwem Technology with his longtime associate, Dr. Luis Alvarez. Alvarez died last month in California.

Schwem's Gyrozoom® lens, developed by Alvarez and Schwemin, uses optical rather than mechanical techniques to achieve image stabilization. Besides providing superb stabilization, its small size makes it usable in situations where bulky mechanical mounts can't fit, such as in small helicopters.

Gyrozoom fits most 2/3-inch ENG/EPF cameras, replacing the standard lens. It weighs less than eight pounds. Since a standard lens typically weighs about four to five pounds, the added weight is minimal.

Gyrozoom has been used by broadcasters around the world for news and sports coverage that has to be shot from unstable platforms such as helicopters, airplanes, boats, and motor vehicles.

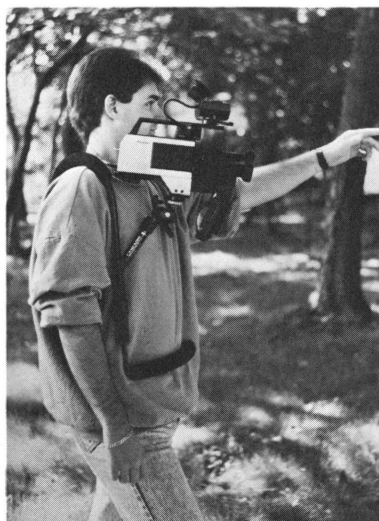
In sports coverage and teleproduction, Gyrozoom has meant that events could be televised in new ways. In ESPN's 1987 Americas Cup coverage in Australia, for example – generally considered the finest coverage of sailboat racing in history – Gyrozoom was used from both aircraft and boats to provide unique footage. The lens was also used to cover the 1988 Americas Cup in San Diego and various events at the Seoul Olympics.

Schwem has received two patents covering the technology in Gyrozoom, one for a "servo-integrating stabilizer" and another for an "optically stabilized camera lens system."

For more information: Schwem Technology, 3305 Vincent Rd., Pleasant Hill, CA 94523, (415) 935-1226.

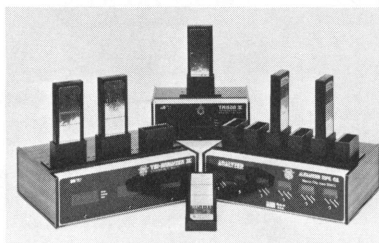
### Video Camera Support

A new video camera support has been introduced by Bogen Photo Corp.



Made of rugged, black anodized aircraft-grade aluminum, it's padded with comfortable Neoprene® at both the shoulder and the waist braces. The Bogen Video Camera Support weighs only 2.6 lbs. complete with a double ball joint head with camera platform for quick, easy attachment to the camera and is designed so that both hands are free to operate the camera. Changing tapes or using a zoom lens is simplified. The Bogen Video Camera Support is adjustable to fit the user and folds flat for carrying and storage.

For more information: 17-20 Wil-low Street, P.O. Box 712, Fair Lawn, New Jersey, 07410-0712.



### Battery Analyzers

The TA1500-II, TA3500-II and TA6500-II allow the video and broadcast engineers to analyze the battery while conditioning it. The Tri-Analyzers simultaneously charge the battery with the

specially developed negative-slope voltage based charging method. After the battery is fully charged, the Tri-Analyzer discharges the battery. Once the battery capacity is discharged to one volt per cell, the battery capacity is displayed in mAh. The battery is then recharged for use.

All Alexander Tri-Analyzers include a three-prong grounded six-foot cord and are equipped with whisper-quiet cooling fans and safety guards.

The six-unit TA6500-II Tri-Analyzer checks remaining capacity and conditions six batteries simultaneously. The TA6500-II charges BP1s, BP1-11s, and BP1As at a rate of 600 milliamps and discharges at a rate of 429 milliamps. A ten-cell will be fully charged in six to nine hours.

For more information: Alexander Batteries, P.O. Box 1508, Mason City, Ia. 50401.



### New Cine Meter

Sekonic announces a new full-function, multi-featured professional cine meter – Digi-Lite F model 328. This lightweight meter with applications for cinema built-in, provides total information digital and analog display for fast, error-free readings.

In addition to its wide range of light measurement features, the Digi-Lite F provides shutter accuracy from 8 to 128 fps. for covering the full spectrum of cinema metering. The meter is available at a modest price and is an effective tool in virtually any lighting situation for cinema and photography alike.

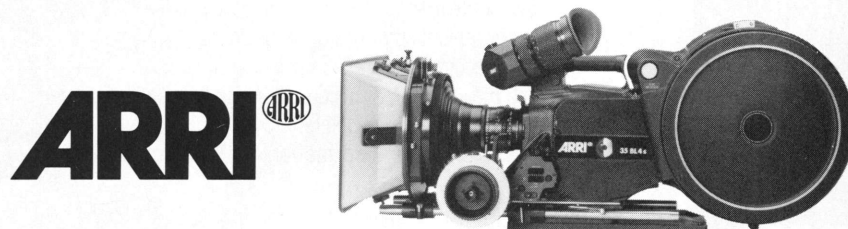
Designed for the working professional and advanced amateur cinematog-



5 Years in a Row,  
and 10 times since its introduction in 1972,  
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Oscar<sup>®</sup> for Best Achievement in Cinematography  
have chosen the Arriflex 35BL  
to photograph their Award-winning films.

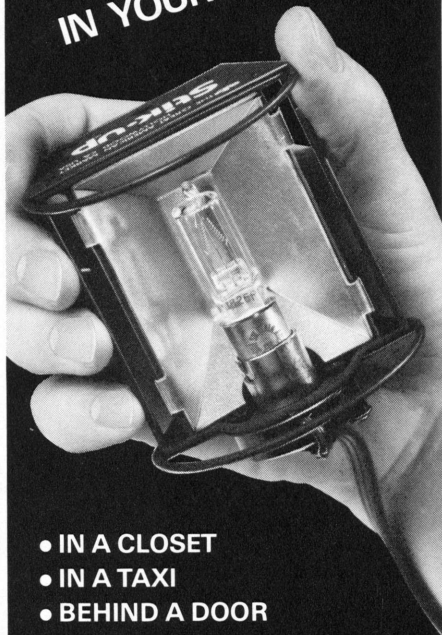
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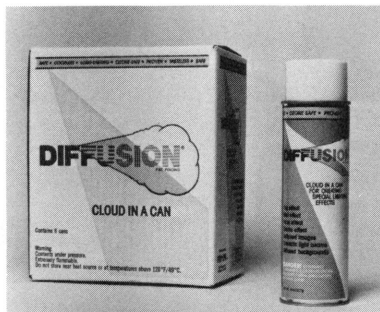
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rapher, this compact meter, which fits into a shirt pocket, provides total exposure control, including instantaneous combinations of aperture, shutter speed and ISO, and full information digital and analog display for easy at-a-glance readings.

The advanced Sekonic microprocessor circuitry in this compact unit lets the cinematographer take one reading for ambient and flash integration. The film speed can be locked into memory by turning off the unit, eliminating the need to re-read the light when changing film speeds.

For more information: Sekonic, 40-11 Burt Dr., Deer Park, NY 11729, (516) 242-6801.



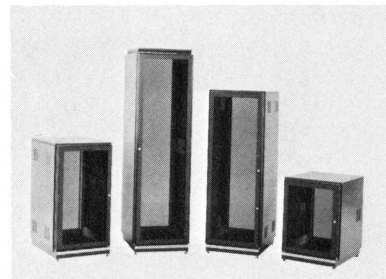
#### Diffusion in a Can

Dramatic light beams, softly diffused images, glowing halos, or fog/smoke/haze effects are all possible by simply spraying Diffusion<sup>TM</sup> into the air. This is the non-toxic, ozone-safe, odorless and tasteless compound developed by PRO EFX, Inc. to create the atmospheric lighting effects such as those seen in the movie *Bladerunner*, and now seen regularly in productions like the Michael Jackson Pepsi commercials and his music videos. These effects used to require big and expensive diffusion fogger machines but cinematographers, still photographers, even live theatre lighting directors can now create many of the same effects by using a convenient spray can of Diffusion<sup>TM</sup>. Diffusion becomes a three-dimensional filter that makes lens diffusion filters and "vaseline on the lens" obsolete.

For more information: (219) 924-6136.

#### Rack Cabinets

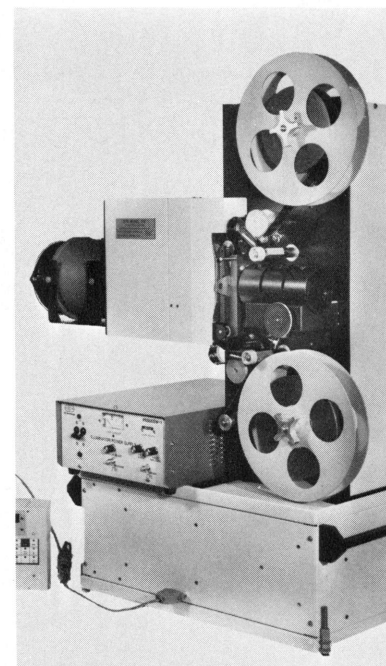
Electronic equipment can be protected from dust, dirt and tampering by new locking plexiglas doors available from the Winsted Corporation. Designed especially for Winsted's Rack Cabinets, the see-through doors allow easy viewing of sys-



tems. Doors are recessed 1/2" for offsetting electronic control knobs and switches, and can be mounted for either right or left hand openings.

The plexiglas doors mount easily on any of Winsted's vertical or sloping rack cabinets. Constructed with formed and welded steel frames for extra strength, the doors have smoke-tinted plexiglas panels for see-through viewing of electronics.

For more information: Winsted Corporation, 10901 Hampshire Avenue So., Minneapolis, MN 55438, (612) 944-8556.



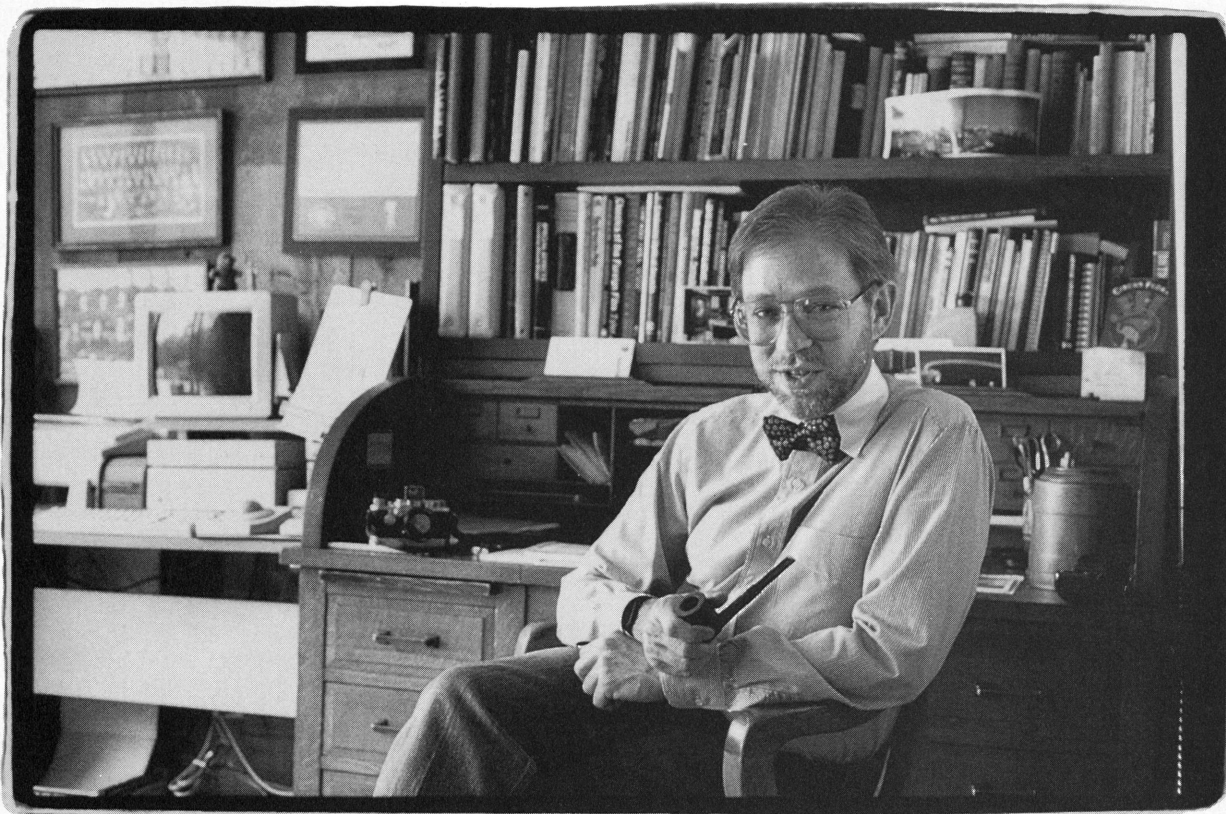
#### Electronic Projectors

Pioneer Technology Corporation announces a new line of electronic projectors which are available in several models including 16mm, 35mm (3-perf, 4-perf, Vistavision), combination 16/35mm, combination 35mm/Vistavision, 70mm (5-perf, 8-perf, 10-perf, 13-perf) and combination 35mm/70mm.

All projectors feature electronic registration and pulldown which substan-



# Steven Poster<sub>ASC</sub>



© Eastman Kodak Company, 1988

## on film:

"Film is an impressionistic art rather than an exact medium of reproduction. You use light to activate tiny silver crystals. Then you enhance the images chemically. It's like magic. There is a random granularity that adds texture...and a dynamic range of contrast you can control. The audience sees an impression of reality...it's almost subliminal. You can create any look with today's Eastman films. I have very few secrets about photography because I can tell anyone what I am doing but no one else will do it exactly the same way. It's a very emotional, intuitive art. I dreamed about this job as a 14-year-old. It's even better than I expected. Very few people enjoy that privilege."

*Steven Poster's credits include "Someone to Watch Over Me," "Big Top Pee Wee" and "The Boy Who Could Fly." He's currently shooting "Next of Kin."*

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tially reduces wear and tear on film (no pulldown claw or mechanical registration pin).

The Pioneer PTC Projectors provide flicker-free projection at all operating speeds, forward or reverse. The PTC projectors are designed to operate at speeds from 0 to 30 frames/second, forward and reverse. Other features include ease of threading, gate removal for cleaning, slide-in aperture correction, focusing, special framing feature, and easy to use operator controls.

PTC Projectors also are offered with a computer based "show controller" for special applications wherein unattended operation is required.

For more information: *Pioneer Technology Corporation*, 1021 N. Lake St., Burbank, Ca., 91502. (818) 842-7165.



## Award for Steadi-Film

The Steadi-Film System has been selected by the International Teleproduction Society (ITS) board of international engineers to receive the prestigious Monitor Award. The system was recognized by ITS for special achievement in engineering excellence.

The Steadi-Film System is a pin-registered gate, precision retrofitted to the Rank Cintel Mark III, with a micro-processor, creating rock steady film-to-videotape transfers. The elimination of film weave allows the marriage of film, tape and computer graphics in perfect registry. In addition, the system's micro-processor converts the telecine into a video optical printer, making it possible to reverse print, skip print, record every frame, every tenth frame, or any permutation desired. The system interfaces with single-frame video recorders and digital disc recorders, along with color grading systems. Three perforation pulldown capability is also available.

For more information: 705 Eighteenth Ave. South, Nashville, TN 37203, (615) 329-2073.



## Lighting for High Speed

For the 32nd SPIE symposium, LTM exhibited for the first time four fixtures specifically designed for high speed photography and filming.

The EXPAR 1200W is an explosion proof instrument complying with the toughest European standards: EX Group IIC which guarantees safe operations even in highly explosive areas.

The EXOPAR 1200W is a weatherproof version of the EXPAR.

The AQUAPAR 1200W is an underwater version of the EXPAR, rated at minus 200 feet.

The CINEPAR CGV 1200W is a lightweight, compact high speed lighting instrument for normal environment filming.

These high speed fixtures are currently used in France by AEROSPATILE (French Astronautics), Peugeot and C.E.P.R. (French Jet and Propulsion Testing Lab.).

For more information: LTM, 11646 Pendleton St., Sun Valley, CA, 91352, (818) 767-1313.

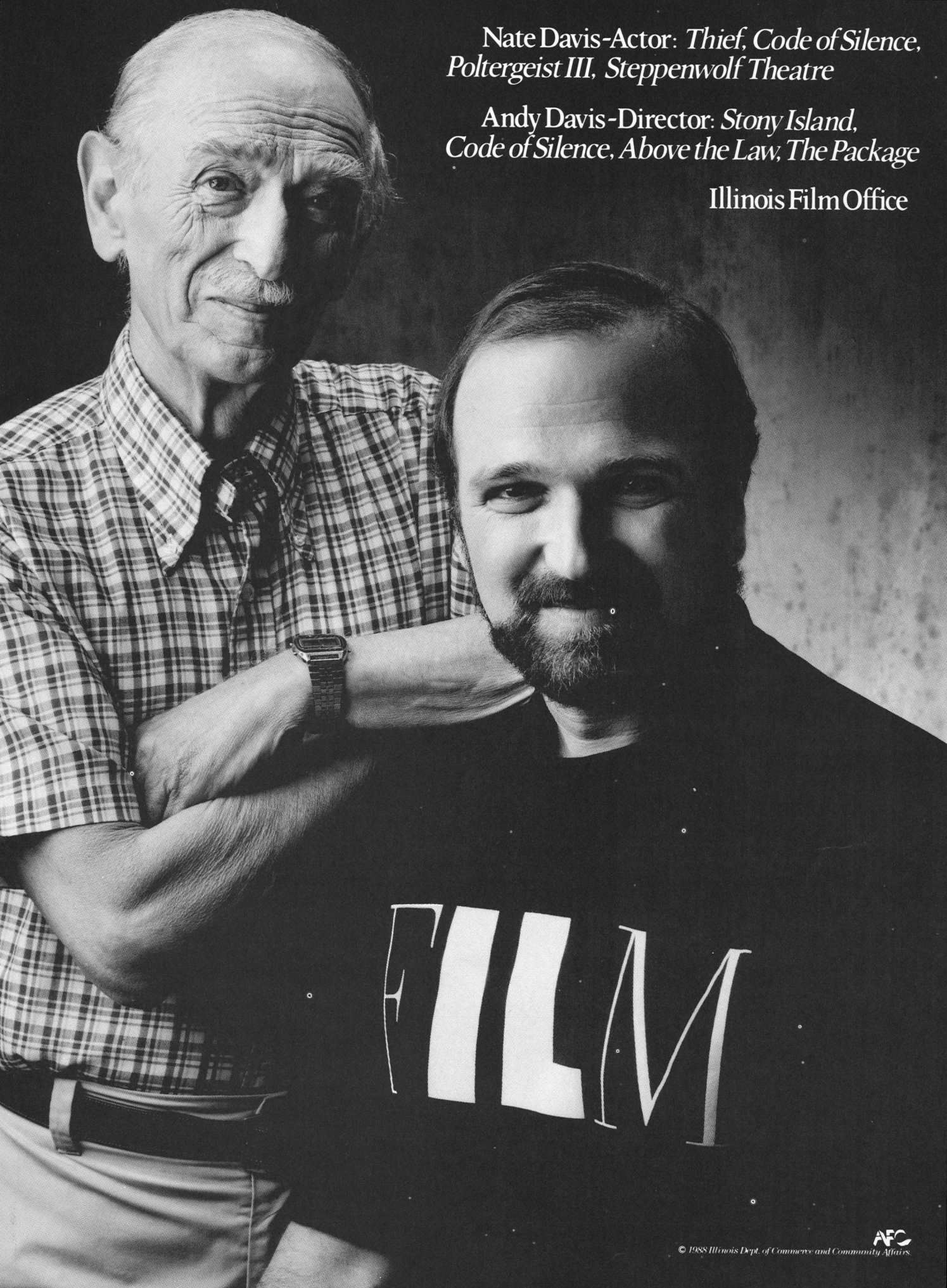


## Electronic Still Image Camera

A camera that lets consumers instantly play back their pictures on a television screen was introduced today by Canon U.S.A., Inc.

The new Canon RC-250 electronic still image camera both records and





Nate Davis-Actor: *Thief, Code of Silence, Poltergeist III, Steppenwolf Theatre*

Andy Davis-Director: *Stony Island, Code of Silence, Above the Law, The Package*

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plays back, and uses a miniature magnetic disk instead of film to record the images, so no processing is required. To look at the photographs made, simply connect the camera to a TV set and select "play." Up to 50 images can be recorded on a single two-inch disk and each can be erased at any time and new images made.

The camera features include a half-inch CCD image sensor coupled with Hi-Band recording for good image quality, built-in electronic flash, automatic exposure, intelligent automatic white balance for accurate color rendition, a long-life rechargeable lead battery, and continuous shooting at three frames per second.

The Canon RC-250 electronic still image camera features a fixed focus 11mm f/2.8 lens (equivalent to a 60mm lens in the 35mm format) that provides sharp images of subjects at a distance of 3.3 feet (1m) to infinity from the lens. A built-in macro mechanism focuses as close as 12 inches (30cm).

The camera has a metering range of EV 8 to 18 at an equivalent of ISO 100. A backlight compensation button provides an extra 1.5 EV.

The Canon RC-250 measures 5.6 (W) x 1.3 (H) x 4.2 (D) inches (142 x 34.5 x 106mm) and weighs 1.15 pounds (525 g).

For more information: Canon, Inc., One Canon Plaza, Lake Success, NY, 11042.



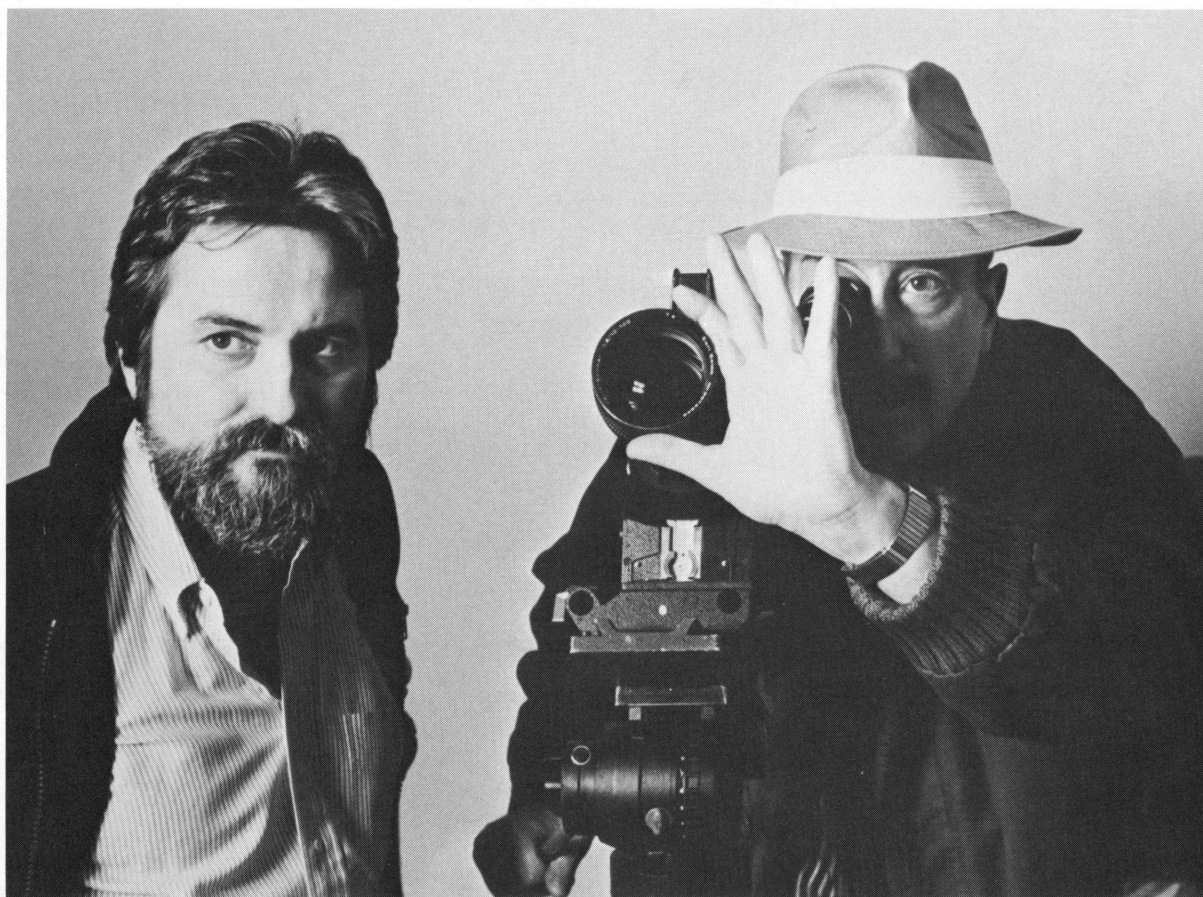
### "Videotransfer" Telescreen

The new Hama "Videotransfer" Telescreen is a double-duty accessory for recording or viewing slides and movies. As a daylight screen with metal-coated reversal mirror, the Telescreen displays slides and movies to permit recording them with any video camera. Thus, film-to-tape transfer becomes a simple operation.

The Telescreen can also be used for table-top viewing of movies or slides.

The screen area is approximately 64 square inches (7<sup>7</sup>/<sub>8</sub>" x 7<sup>7</sup>/<sub>8</sub>"). An





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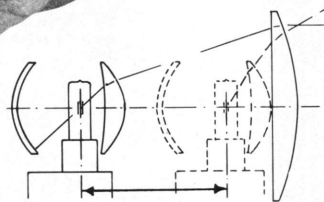


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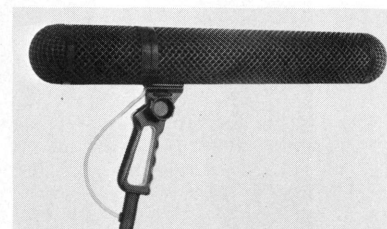


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accessory foil titling set permits adding titles or special effects when using the Tele-screen. The foils with titles are simply suspended in front of the screen to provide a "floating" effect. These fills can be easily removed for changes.

For more information: Hama,  
11916 Valerio St., No. Hollywood, CA 91605.



### Screen Improvements

Light Wave Systems announces an improvement in design of the two-year-old Super-screen – a new third generation Mini-screen, plus new and improved Suspension mounts.

A major improvement to the Super-screen is a new 4 lug locking ring that replaces the 4 pin fabrication design. The ring couples to the bayonet/breech section with a constant on/off pressure and sealing O-ring. Design assures retrofit to all prior Super-screens.

The four-year-old Mini-screen has a fully redesigned neck opening section that gives greater grip, damage resistance and quality control. The extremely quiet Ultra-mount, which was developed especially for the new Neumann RSM 190i-S, now has accessory adapters to fit most short shotguns. Primary use is with the studio perambulator boom. Secondary uses include the isolation of floor vibration, while stationary stand mounted. The Ultra-mount utilizes 1/4" x 1/16" strips of pure gum rubber held flat under (variable) tension. Rubber strip replacement takes just a few seconds and rubber bands can be used in emergencies.

For more information: Light Wave Systems, 7760 Burnett Ave., Van Nuys, CA 91405, (818) 780-3002.





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Richard Edlund — visual effects supervisor  
The Empire Strikes Back / Raiders of the Lost Ark  
Poltergeist / Return of the Jedi / Ghostbusters / 2010

“Cinefex is the most important film magazine going. Each issue contains more probing detail, more real hard-core information, more truth than ten of any other film magazine. No truly involved filmmaker or studio executive should be without it. And for just plain fans, it's the greatest. Beautifully written. Well-edited. Spectacular color coverage. I read every word of every issue.”

Douglas Trumbull — visual effects supervisor  
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### New Lighting Control

ACCESS, a new computer lighting control board, is now available from The Great American Market. The compact 48-channel system features 'big board' capabilities. ACCESS will support up to 256 dimmers, depending on output format. Its cue memory capacity is 232 full-sized cues, 464 with removable library storage. Features include: six fully overlapping submasters with flash buttons, manual split dipless crossfader, two independent time faders with separate cue assignments, dynamic CRT 'cue sheet', and a choice of eight menu-selectable output formats. Instructions, menu selections, and 'Help' are always displayed on the CRT screen in straightforward language. The operator has instant menu access to all functions at all times.

For more information: 826 N. Cole Ave., Hollywood, CA 90038, (213) 461-0200.

### 24-Frame Video Editing

Cineflex,™ a new version of the proven Ediflex editing system specifically designed for feature film makers, is being introduced by Cinedco. The new random-access editing system is created for filmmakers who demand true 24 frames-per-second editing from a video-based system. It solves the long-standing technological problems caused by the conflict of film's 24 fps frame rate and video's 30 fps requirements.

Cineflex does this by using half-inch video tape recorders for scene playbacks which run at 24 frames per second, as well as a 24 fps three-quarter-inch VTR (for assembled cuts).

Cinedo Inc. is the manufacturer of Ediflex editing systems, the most widely used editing system for the post-production of current prime-time television programs. For more information: 1225 Grand Central Ave., Glendale, CA 91201-2425, (818) 502-9100.





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- Most powerful, picture-oriented nonlinear system. Easily handles complex action shows. Montage combines the best attributes of film and video with the ease and flexibility of common PC word processors, so you can edit pictures and sound electronically without "crunching numbers." With unlimited creative options.
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- Designed to edit two sound tracks and one picture track, Montage tracks all three independently. You can trim picture and sound separately, frame-by-frame. Make changes with ease. Slip-sync. Create instant sound overlaps. You can even lay a temporary music or effects track, or record a narration.
- Clips can be viewed, copied, lengthened, shortened, and played in any order desired — in real time — along with fades, dissolves, soft cuts and wipes between the scenes. Without requiring lab reprints or rerecording. You can store and retrieve multiple versions of complete cuts for further evaluation at any time.

- Unique "Electronic Trimbin." Imagine having a wall-to-wall trimbin! With immediate random-access to thousands of clips of varying lengths, all uniquely and clearly identified by digitized pictures of their head/tail frames. And they can all be organized in "electronic workbins" — the way a film editor traditionally organizes his material!
- "Storyboard" printouts provide hard copy of digitized pictures of head/tail frames, user notes, and cutlists.
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- Familiar, film-style editing tools, including electronic writing tablet and "grease pencil" to mark frames and write notes.
- Readily integrated into the established film post-production process. No waiting for videodiscs. No esoteric equipment or non-standard tape transfers required.
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16mm Mitchell camera, Body Only	\$ 7,500.00
NPR Camera 2 each, 400' Mags, XTAL Motor, Orientable Finder, Ang. 12-120mm Zoom, Cable and Case	\$ 4,500.00
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Beauleu R16 Body Only, no battery	\$ 295.00
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All of the above cameras could be used as double system cameras, as they are self blimped w/synchronous motors and totally noiseless.

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100mm Miltar T2.3 Eyemo Mount	\$ 200.00
100mm Baltar T2.5 Eyemo Mount	\$ 200.00
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32mm Zeiss Planar Arri Standard Mount	\$ 1,195.00
40mm Schneider Xenon Arri Standard Mount	\$ 495.00
50mm Schneider Xenon Arri Standard Mount	\$ 495.00
50mm Zeiss Planar Arri Standard Mount	\$ 895.00
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50mm Baltar Arri Standard Mount	\$ 395.00
75mm Schneider Xenon Arri Standard Mount	\$ 495.00
85mm Zeiss Planar Arri Standard Mount	\$ 895.00

### 35mm ZOOM LENSES

	Sale Price
60-240 Pan Cinor w/Finder BNC Mnt.	\$ 1,995.00
38-155 Pan Cinor w/Finder BNC Mnt.	\$ 1,995.00
28-280 Zomomatics (Fujinon Glass) Arri Std. Mnt.	\$ 2,495.00
25-250 Angenieux Arri or BNCR Mnt.	\$ 2,995.00
20-120 Angenieux Arri or BNCR Mnt.	\$ 5,495.00

### 16mm ZOOM LENSES

	Sale Price
17-70 Pan Cinor Arri Std. Mnt.	\$ 99.00
17-70 Pan Cinor Arri Std. Mnt.	\$ 295.00
17-85 Pan Cinor Arri Std. Mnt.	\$ 395.00
12 to 120 Angenieux Zoom Lens RX Mnt. for Bolex	\$ 1,695.00
12 to 120 Canon Macro-Zoom	\$ 1,750.00
12.5 to 75 Angenieux Zoom Mnt. 1	\$ 895.00
10 to 150 Angenieux Zoom Arri B Mnt., excellent	\$ 2,495.00
9.5 to 95 Angenieux Zoom Arri B Mnt., excellent	\$ 1,795.00
12 to 120 Angenieux Zoom Arri B Mnt., like new	\$ 2,195.00
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Mitchell 35mm x 1000' Std.	\$ 395.00
Mitchell 35mm x 1000' NC, BNC	\$ 495.00
Mitchell 35mm x 400' MKII Slant Back	\$ 295.00
Bell & Howell 35mm x 400'	\$ 295.00
Bell & Howell 35mm x 1000'	\$ 249.00
Mitchell 16mm x 400'	\$ 249.00
Mitchell 16mm x 1200' (like new)	\$ 695.00
Eclair NPR 16mm x 400'	\$ 995.00
CP16 PLC4A (new) Spec	\$ 399.00
Bell & Howell 16mm x 400' used	\$ 249.00
Bell & Howell 16mm x 400' new	\$ 595.00
Arri 1000' BL I Magazine	\$ 3,995.00

- All Equipment is used unless otherwise stated
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Mitchell BNC 'Matte' Punches	\$ 295.00
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Arri IIC "Cosmovision" Bright Door	\$ 1,295.00
AGE 35 Arri Hi-Hats	\$ 59.95

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Colortran Mini-Crab Dolly, used, in very good condition	\$ 4,850.00
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Arri "Cartoni" Gyro Head w/legs	\$ 895.00
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Richardson 35-16-BH Movement	\$ 2,886.00
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Richardson 70-13MS-13 Movement	\$ 2,250.00
Richardson 70-14MS-14 Movement	\$ 2,250.00
Traid CI-16-1 IL Movement	\$ 2,250.00
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Swintek 1L/SM58 Hand Held Wireless Microphone, complete with Swintek AC/DC Receiver.	List \$2,488 Now \$550.00 - \$750.00
Swintek Mark 200D Communication System, 5 units, includes headsets.	List \$6,600 Now \$ 3,000.00
Mini-mic Lavalier microphone-assorted types from \$75.00 - 150.00	
Nagra BMII Field Mixer, 3 channels plus line. VG	\$ 150.00
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Moviola 16 UL20S 1-Picture 1-Sound w/Take Up Arms, Console	\$ 1,495.00

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PRINTERS: Acme Model 37 16mm Step Contact Printer. Designed for printing dupe negatives, color separations, master positives. Daylight operation. Acme movement. Variable dissolve shutter, 16-128 frames. Prints edge numbers on either side of film, has automatic light and shutter controlling devices, variable speed sync motor for speeds of 1/2, 3, 6, 12, 16 and 24 fps. Film capacity, 1200 feet. Rebuilt like new.	\$35,000.00
Bell & Howell MDL 6100 CT Additive Color Printer. Printer speed is 180/60fpm. One side edge light. Only 40 hours of operation. Like new.	\$19,500.00

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Call Ms. Allen, Performing Arts (213) 825-9064 for more information or to request the free Winter Quarter 1989 film, television and video catalog. Or write UCLA Extension, Performing Arts-Entertainment Studies, P.O. Box 24901, Los Angeles, CA 90024-0901.

*Winter Quarter Begins  
January 3*

## The Bookshelf

by George L. George

Prof. Bruce F. Kavin's comprehensive text, **How Movies Work**, covers all aspects of the film medium in a highly readable, informative and scholarly fashion. Theoretical, esthetic and technical aspects of cinema are investigated in extensive detail, offering a thorough understanding of stylistic concepts, artistic considerations, and factual elements of film production and appreciation. Numerous examples clarify the text through references to specific movies, contributions of creative and technical personnel, and common production practices. (Macmillan, NYC, \$24.05).

Edited by Wes D. Gehrig, **Handbook of American Film Genres** classifies, in 18 groups, movies related by a similarity of subjects and/or themes. Each genre, from gangster to parodies and musicals, is significantly discussed in well-documented essays, supplemented by substantial biblio- and filmographies. (Greenwood, Westport, CT, \$55).

Updating an earlier volume, **The Great Western Pictures II** includes some 400 films released since 1976 and adds some overlooked in the original edition. Compiled by J.R. Parish and M.R. Pitts, the book provides extensive cast-&-credits, plot synopses and reviews. (Scarecrow, Metuchen, NJ, \$45).

A gifted photographer with a keen eye for the incongruous and the unexpected, David Strick assembles in **Our Hollywood** 65 stills that sneak brazenly behind Tinseltown's public image. (Atlantic Monthly, NYC, \$24.95). In **Hollywood Anecdotes**, P.L. Boller Jr. and R.L. Davis compile an entertaining treasury of humorous stories that poke fun at the foibles of the movie capital. (Ballantine, NYC, \$10.95).

Ingmar Bergman, in **The Marriage Scenarios**, collects 3 of his best-known scripts. They reveal the director's deep understanding of human relationships, further demonstrated in his insightful commentary. (Pantheon, NYC, \$9.95). In **Uplift the Race**, director Spike Lee (with assist-

ant director Lisa Jones) publishes his script of *School Daze*, together with a detailed and often hilarious account of the film's production. (Fireside, NYC, \$9.95).

It is easy, and tempting, for a screenwriter to satirize Hollywood, and Ben Stein does it without remorse or apologies in **Hollywood Days, Hollywood Nights**. His chronicle takes us to producers' offices, fancy restaurants and hospitable homes, bidding us meet an array of bizarre and outrageous people trying to reconcile reality with Hollywood fantasy. (Bantam, NYC, \$7.95).

An historic survey by Richard Abel, **French Film Theory and Criticism** examines some 150 analytical studies of cinematic concepts published between 1907 and 1939, prior to André Bazin's original essays. Prof. Abel's anthology presents a comprehensive 2-vol. survey of these early writings, contributing notably to the knowledge and understanding of film theory. (Princeton U. Press, Princeton, NJ, \$49.50 (Vol. I), \$35 (Vol. II)).

In **Screening the Holocaust**, Prof. Ilan Avisar analyzes perceptively the depiction of Nazi atrocities and their victims' suffering in a number of U.S. and foreign films. He argues that the unprecedented nature of these events presents artists with special problems, and finds that they were generally solved in effective and meaningful ways. (Indiana U. Press, Bloomington, \$35/12.50).

The role of films in the evolution of social structures is examined by Marc Ferro in **Cinema and History**. Citing such movies as *The Third Man*, *On The Waterfront*, *Battleship Potemkin* and *The Bicycle Thief*, Ferro identifies film as both an agent of historical change and a witness to its unfolding. (Wayne State U. Press, Detroit, \$27.95/12.95).

Director Pier Paolo Pasolini's reputation extends beyond his films to his theoretical and philosophical writings. In **Heretical Empiricism**, he deals, among



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other matters, with the semiotics of film, the theory of editing, the "Cinema of Poetry," and politics. His discourse is scholarly and eloquent, and his style assertively polemical. (*Indiana U. Press, Bloomington, \$37.50*).

An international repertory edited by Randall D. Larson, **Film Music Around the World**, includes probing interviews with composers from 21 countries, providing essential data on their careers, and listing the films they scored. (*Fandom, Box 70868, Sunnyvale, CA, \$7; Borgo, Box 2845, San Bernardino, CA \$19.95*).

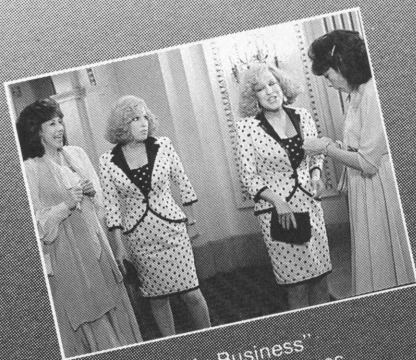
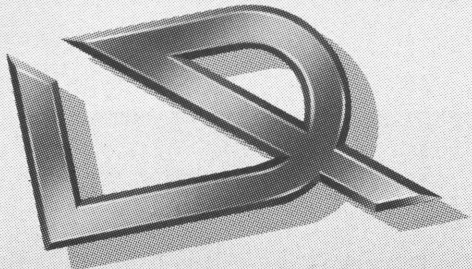
Mel Blanc, whose voice lent uniqueness and individuality to many Disney cartoon characters, gives in **That's Not All Folks!** a nostalgic and witty account of his career and the progress of the animation craft. (*Warner, NYC, \$17.95*). In **Mickey Mouse: His Life and Times**, Richard Hollis and Brian Sibley compile an entertaining and well-illustrated survey of the famous rodent's personality, performances and merchandising opportunities. (*Harper & Row, NYC, \$14.45/9.95*).

Three movie stars of yesteryear are profiled in recent books. David Stenn's **Clara Bow: Runnin' Wild** portrays the "It" Girl as a liberated woman ahead of her times, but not so outrageous as often depicted. (*Doubleday, NYC, \$18.95*). Jane Powell's **The Girl Next Door...and How She Grew** is a saddening memoir of a small-town youngster lost in glamorous Hollywood. (*Morrow, NYC, \$18.95*). A picture-and-text tribute by Sam Shaw/Norman Rosten, **Marilyn Among Friends** is a moving and affectionate celebration. (*Holt, NYC, \$26.95*).

Over 500 juvenile performers crowd David Dye's **Child and Youth Actors**, a first on the subject. Vital statistics, detailed listing of every film, television and stage appearances from 1914 to 1985, a bibliography and a full index round out this useful reference book. (*McFarland, Jefferson, NC, \$24.95*).

Cinema as an art has inspired many poets, and it now has inspired Anthony Slide to collect in **The Picture Dancing on a Screen** a literate and delightful anthology of verse that sings of the film medium in its many guises. (*Vestal Press, Vestal, NY, \$16.96*). 

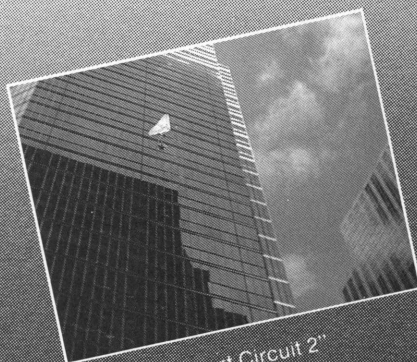




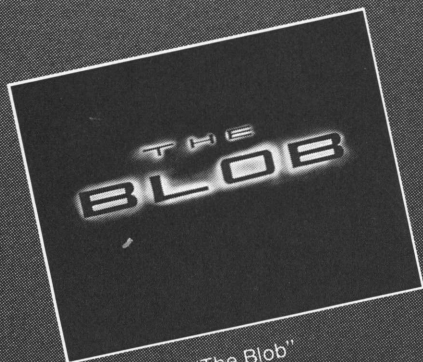
"Big Business"  
Touchstone Pictures



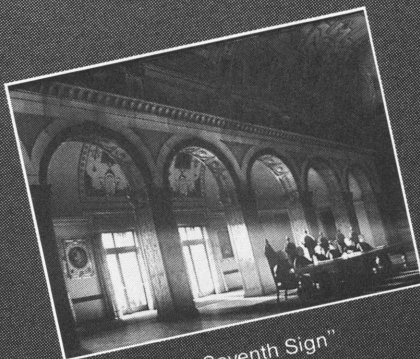
"Scrooged"  
Paramount



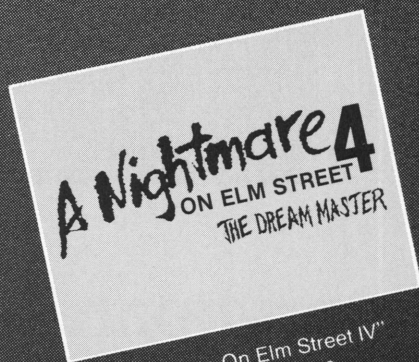
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Photos by Jane O'Neal and James McGeachy

# Storyboarding Key to *Beetlejuice* Effects

by Douglas Turner

"About two years ago, I was called by director Tim Burton to storyboard *Beetlejuice*, and the rest is motion picture history; the end," says Alan Munro, the visual effects supervisor on the successful '88 summer film by that name. On screen it may be history but the details of how the many varied effects came together through the combined efforts of such notable effects people as Robert Short, Pete Kuran, Chuck Gaspar and others does deserve a flashback.

Munro previously worked as art director in the effects department at Cannon Films on such pictures as *King Solomon's Mines*,

*Alan Quatermain* and *The Lost City of Gold*, and *Invaders From Mars*, before going on to supervise effects on *The Wraith*. "Needless to say, we storyboarded for a couple of months, and I rolled gag mania into the film. I wondered each night if they really would do it. Looking back, we actually accomplished everything that was committed to paper. Very little was cut, and most of that was cut for the right reason, namely story.

"At first, I wasn't supposed to coordinate effects, but Tim and I had some mutual loves, most notably Karel Zeman films, obscure films that have a strange

woodcut look and style. They're a combination of live action and cut outs. They are crude and funky, but they work on a level that is consistent, creating their own universe not only in aesthetics but internal logic. In *Beetlejuice*, we tried to create a rule book of internal logic and stick to it in terms of how things were presented. We were always toeing the line between real and unreal, serious and not serious, scary but at the same time funny, always doing a balancing act of what seemed to be opposing notions."

The effects work in *Beetlejuice* is characterized by an empha-



sis on in-camera effects and matter-of-fact presentation. "I'm a really big fan of early British films that have some beautiful looking stuff that was done in camera," Munro noted. "Times being what they are, however, there's not a lot of call to try those things. This was our chance to try some and prove that it was also feasible, financially, to do this kind of work. There were about a half-dozen shots that we wanted to do this way, but there were a lot of unconvinced people in the production. My first task was to go off with the cameraman (Tom Ackerman) to do sort of a \$1.98 version of some mirror shots and prove that we could get away with stuff that looked extremely klunky on set, but were very acceptable on camera.

"In *Beauty and Beast*, the French film, there is a scene where a bracelet transforms into a rag. It is presented in a very matter-of-fact manner; the person drops the bracelet, and the camera whip pans down to focus on the transformed object. Of course it was achieved by simply dropping the bracelet off screen and having some one else drop the other object. The whip-pan covers it. Using this notion, we arrived at the transition of the bannister into the snake, which was just a sculpted piece, rather than doing an effect of the transition. The sculpted piece makes the transition from the normal bannister to the snake body with just a camera pan, along its length, motivated by a hand. It worked, the magic of the shot being its matter-of-factness."

Mirror shots were *de rigueur* in the '20s, for ghost images. Munro had done some shows at Expo '86 which involved mirror gags. He was intrigued by the possibilities inherent in scenes in which characters disappear. "What it takes is two things: the person who is going to vanish (placed off set), and the real set with the real people; that is, all of those things that aren't going to vanish," Munro explains. "To make the vanishing person appear solid at the beginning, it's necessary to selectively cut out the light on the real background so that you don't see through the



Page opposite:  
*Beetlejuice*  
(Michael Keaton)  
sits between the  
*Headhunter* and the  
*Shrunken Head*  
*Man in the waiting*  
*room. Above: The*  
*large sand worm*  
*puppet with Geena*  
*Davis and Alec*  
*Baldwin. Left: The*  
*small sand worm*  
*puppet receives*  
*finishing touches*  
*from Doug Turner.*

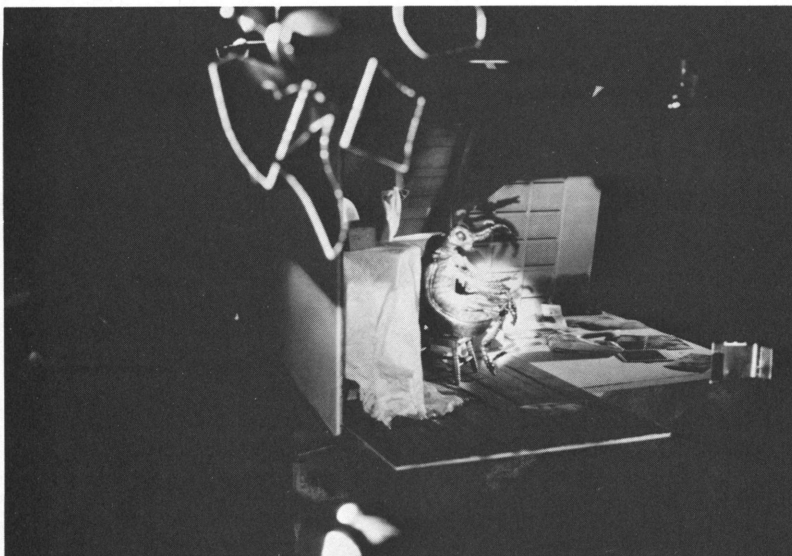
body, and also to position in such a way that one person is not crossing over another person. The first step is not to bring down the light on the character, but to bring up the light on the background. That gives the feeling that you could suddenly see through them, which heightens the illusion.

"The beauty of the mirror shot is that, once set up, the camera is completely free to pan, tilt, dolly, or whatever, because the image is actually there. In the course of these shots, there are some very

natural camera moves. If we had tried to do these by the usual blue screen method, we would have had to go with motion control on the set, then motion control match moves later on with the blue screen person. It would have been prohibitively expensive. Just by controlling the light and taking care in planning how we were to stage the shots, we were able to get a result that ordinarily would have been very costly and complicated. The other beauty to it is that it's all first generation film.



Top: Eight-inch beetle puppet in a miniature setting. Mirrors in foreground bounce light into scene. Below: Adam's "stretch head" being sculpted by Mike Hosch.



"It's basically taking a front surface mirror and placing it at a 45 degree angle directly in front of the camera lens," Munro continued. "The blacked out stage with whatever is going to disappear is at a 90 degree angle and an equal distance from the plane of the glass as the real set. Then, of course, they must be lighted separately. The other critical factor is that the object being reflected has to be flopped, to right hair parts, rings on the fingers and so on. "On one particular shot where the character Barbara is supposed to be vanishing, Adam reaches up and passes his hand through her body. For that I stood by Geena (Davis who plays Barbara) in front of a light and matched his hand gestures to cast

the correct accompanying shadow on her face to heighten the feeling that they are in the same physical place. All of the elements are together on stage, and it's easier than trying to coordinate them at a later date."

To helm the film's vast array of creature and makeup effects, Munro and the production company selected Robert Short. "Bob and I share a lot of ideas about approach, such as always trying to keep things as basic and low tech as possible," Munro said. "Anytime you over-complicate things, you magnify the probability that something will go wrong. By keeping everything simple and straightforward, you not only minimize the number of things that can go

wrong, but it's that much easier to troubleshoot any problems on the set. Bob and I both come from the low budget school of thinking, with a scotch tape and rubberband approach to solving problems."

Short is well known for his water related effects, such as the mermaid tail in *Splash* and the dolphins and cocoons from *Cocoon*. "No one particular effect offered the most challenge," says Short, "but the sheer number and diversity of effects was staggering." They involve the widest range of the movie magician's art, including shrimp cocktails attacking dinner guests, transformations, headless bodies running around, people sprouting spikes, ripping off their faces or distorting them hideously, giant sandworms, snakes, a six foot beetle, a fly, and a variety of walking corpses and ghosts.

"Each effect required a different technique and there was hardly any overlap of application from effect to effect," Short allows. "Budgeting was a best guess scenario, but Alan Munro's storyboards were very precise and showed an excellent knowledge of what it would take to accomplish the effects in terms of camera angles and such. They were very helpful in keeping the budget down.

"Most of the designs were done by either Rick Heinrichs or myself," explained Munro. "Rick had a precise sense of what Tim wanted and would always kind of act as the final arbiter of the finishing touches. Tim would assign either Rick or myself to design a specific creature, be it a transformation, the preacher, charman, or whatever. In a lot of cases I would do the initial design, then Rick would do some refinements, and I might do the final drawings. In other cases it would be exactly the opposite. The only things designed solely by one of us were the sandworm and the snake, which were Rick's."

"One of the things we prided ourselves on," Short relates, "was being able to duplicate exactly the designs given to us from production. At the director's request,



certain designs had to be duplicated to the most minute detail to the maquettes." The sculpture staff, including Linda Frobos, Leo Ryn, Kent Jones, and others, often stood by as the maquettes were held up in front of the final sculpture and checked for faithfulness of detail, and to assure that the planned asymmetricalities were rendered appropriately.

"We always took into account some sort of emotion or character that captured the essence of the thing and incorporated that into the sculpture. For example, there is only so much movement that one can get out of any facial appliance, so when it came to creating the degeneration sequence for Adam and Barbara we considered the script's description reflecting utter sadness and integrated that into the sculpture," Short continues. "We've been asked at times why the old age make-up was so stylized, and we remind people that they're not strictly old age make-ups, but a representation of what 'death for the dead' looks like. It's a different state of being than old age. Considering the style and overall design of the film, a realistic old age, ala *Amadeus*, would have been inappropriate." In fact, Short's crew was planning a realistic approach but as soon as they started sculpting, the director said he wanted a "plucked fruit" look, which began a whole new design process.

The look of everything in *Beetlejuice* was very well planned, as Munro points out. "It was first and foremost an exercise in style. We tended not to compromise the aesthetics in order to accommodate little things like the mechanics." This sometimes caused headaches for Short and his crew. "Tim insisted, for example, on the sandworm having almond shaped eyes. This made it difficult to mechanize, because when the eye moves, it leaves gaps between the eye and the socket. The mechanics had to make a flexible backing which always kept the eyeball pushed against the socket. Of course the eyelids became more complex as well, because the eye ball was always changing shape in relation to both



the lids and the socket."

In one sequence, Barbara stands holding the severed head of Adam, (played by Alec Baldwin) above his body, which lies on the floor. Once the ghostly pair realizes that they are invisible to the humans, Adam opens his eyes and talks to Barbara. Then, as they realize that the attic door is unlocked, Adam's body jumps up, and runs, still headless, out of the room and passes the mortals on the stairs. The body runs into the attic, slams the door and holds it shut. Later, Adam's body re-enters the study and puts his head back on.

"The sequence could very well have been a very expensive series of opticals," Short recalled. "We approached it with the understanding that we would achieve the overall effect live, on stage, without having to compromise its impact. It was agreed that we would create the talking head suspended in mid-air by means of a foreground piece that replicated the front of the desk in the background." The piece was rendered sufficiently out of focus to push it into the background. "Alan created the foreground piece, while we made the foam latex appliance which attaches to Alec's neck to complete the illusion of a stump.

For the body, running, two elements were created. For shots from behind, we made an appliance stump to be worn by the stuntman, and for front and side shots, a mechanical body specifically in running mode was created. This, in turn, gave us all the elements necessary to create such images as the headless body running through a doorway toward camera, then leaving the frame for a split second, then the stuntman returning to slam the door: hence, the illusion of seeing the body from the front and back in a single shot. The last shot was of the body walking to the desk, picking up its own head, and putting it back on. It could have been achieved by having the stuntman pick up the fiberglass head, but to give it more life we opted for cutting the desk in half to allow Baldwin to place his head on the desk. Then, as the stuntman enters and blocks our view for an instant, Alec hands the stuntman a replica of his own head. He in turn, places the glass head on the appliance stump."

"The sand planet was another one of those situations where everyone had assumed that the entire sequence was going to be an optical," explains Munro, "but be-

**Jeff Jones and Geena Davis prepare to emote with Adam's head.**





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ing a fan of in-camera effects, I very much wanted to do it as a forced perspective miniature and shoot it all on set. I built a 1/6th scale model of what the miniature would actually be, then photographed it with Barbie dolls and proved to everyone that you could get a decent frame size with a very small miniature set. The sand planet, at its monumental height, is only about 12 feet deep and about 25 feet wide with rocks that ranged from about seven feet to maybe one or two inches in the background. The back was a small cyc, about 18 feet high and 30 feet wide. Given those restrictions, there is still only one shot in the main sand planet sequence where the people are composited into the shot, that being the wide shot of the worm chasing them across the dune."

"The afterlife sequences presented us with a chance to create an array of gruesome but likeable characters that would become a combination of puppets and live action," says Short. Some of the victims were a relatively easy assemblage of props, such as the camper with the rattlesnake, or the skindiver with the shark on his leg. Others involved prosthetics, such as the man with the chicken bone protruding from his throat and the open heart surgery patient complete with tools still in place. The remaining three, the Charman, the Hunter, and the magician's assistant, were a more complicated combination of live people, prosthetics, puppetry and specially modified furniture. Except for the Charman, the appliances and puppets were constructed long before the actors were cast for the parts. This necessitated some improvisation; the man with the bone in his throat, for example, actually wears the appliance upside down. "It fit better that way."

For the two halves of the magician's assistant, the ragged edged stump was sculpted over a manikin – a male manikin at that – rather than a life cast, and was used for both halves. The actress who played the bottom half was lying flat on a platform that extended through the couch and wore a foam

rubber stump that simply rested on her hips. For the top half, the actress was sitting in a hole in the couch and a slip latex cast of the ragged saw edge was tucked under the edge of her blouse and dressed over the hole.

Short continues, "The most memorable of the characters was Harry, the Haunted Hunter (as the publicity dept. named him; during production he was most commonly known as Pin Head), a man with a shrunken head. This puppet connects an armless torso from the waist up with a live actor to create the illusion of a living thing. Only a few simple mechanisms were required to give the puppet life. Of the seven characters in the waiting room, the most complex was the Charman."

(Puppeteer/actor Turner, the author of this piece, played the role of Charman. His head was covered with a full head appliance, then put through a hole in the wall and connected to a puppet body. A series of rods enabled him to operate the hand with the cigarette, while another puppeteer operated the other hand and the legs, and a third articulated the breathing mechanism. – Editor.)

"For the flattened messenger," Short continues, "we created one body that would accept the real actor's head (with appliances) standing behind, as well as accepting a fully remoted head whose eyes and mouth moved. The real actor was used for straight-on shots while the radio controlled head enabled the crew to pick up shots from the side to establish his thickness of only a few inches. In sequences such as this, one cannot express enough the need for accurate storyboards.

"The typing secretary skeletons were plastic anatomy class skeletons revamped with simple joints so they could be manipulated as rod puppets. They were painted and photographed under ultraviolet light. Each skeleton was given its own UV lamp on which the film could not focus perfectly and this gave us a very ghostly image."

For Juno (Sylvia Sidney)



Short's crew created a foam rubber appliance fitted with a tube through which smoke could be blown. "This presented a problem in the office, when temperatures soared to nearly 100, making it extremely difficult for the make-up technicians to maintain the seam lines," Short says.

"With the football players we found ourselves toeing the line between gross and offensively gross," Munro remarks. "That was part of the notion behind making them bright blue, to sort of take the edge off. They were cast late in the production and their generic appliances were made up well in advance. The body pieces were attached to the uniforms and actually became a part of the costumes rather than being glued to the actors' skin."

Ironically the task which seemed simplest at first turned out to be hardest. The uniforms supposedly trashed during the crash that killed them, in fact were virtually indestructible. Short's crew spent hours hacking away at jerseys and pads with knives, files, machetes and even a chainsaw. One of the best methods of distressing the helmets turned out to be dragging them behind a car!

How to accomplish the scene in which Adam and Barbara distort their faces into monsters was the object of considerable discussion. Munro explains: "The original intent was to do the scene with clay animation, but one of the shortcomings of this method is that you start at one end and kind of let it go. In this case we had to go from an obvious point A, the live actors, to a very precise point B of the finished transformation, a mask that had already been constructed and shot in live action. So we had to get from one point to another in a specific number of frames. We looked at the possibility of doing them as make-up effects, but we couldn't see a way to use that method for a single master, as Tim wanted. There is also something inherently grotesque about people sticking their hands in the back of their throats and pushing the backs of their heads out, or pulling their

jaws apart. We intended it to be shocking, but not shocking in the sense of 'gross.' The decision to use replacement animation was made for aesthetic, rather than economic or technological, reasons.

"The only option we had," Munro continues, "was to sculpt a series of individual heads and shoot them. Tim Lawrence was hired to do this. Aside from the obvious sculpting problems, there was the difficulty of keeping the hair and clothing from chattering. If each statue had its own individual wig and clothing, then in every frame, the hair and clothing would just crawl all over the screen. We worked out a system so that the heads could be moved in and out, but the wigs and clothing stayed in place.

"They were sculpted in roughly half scale, so we had to work out a lighting scheme that tried to be faithful to the set lighting but didn't scream out that they were scaled puppets. That necessitated adding a bit more diffusion and bringing the light level down a bit from what was on set."

Munro describes the process of shooting the fly in the graveyard sequences: All the main graveyard sequences were shot on shallow sets with black backgrounds. We had planned a much more complicated set with slots for puppeteering, but we realized that since the set itself was simply shot against black, the most straightforward way to shoot the fly was to recreate the set and photograph it against black.

"The trick became to concentrate the light on the fly, not on the background. The puppeteers are literally in frame on film, but you can't see them because of their black ninja outfits. We ended up shooting everything at four frames per second and tried to coordinate and time the head and leg action so that it didn't get too frantic. The result is that the fly looks very frenetic."

The film's use of a talking snake is described by Ted Rae, who animated the snake: "The stop motion snake was built one-third scale, in three sections; there was

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no one whole piece of snake. When the snake comes in and talks to Charles, that's a two-thirds scale puppet, shot at 12 frames per second, to a dialogue track run at half speed and blue-screened into the shot. All of the cinematography has such strong directional lighting that we had to put in shadows. For one shot, we took the matte of the snake and repositioned it, diffused it and used that as the shadow on the wall. We had to do a split density shot because it is going through a shadow within a shadow.

"To get the eye movement on the puppet," Munro continues, "we shot it with blank eyes and roto-scoped the eyes in to get the rapid snake-like eye movement and also have the pupils dilate. If there was ever an object totally unsuited to all the drawbacks of stop motion, the snake is it. A snake wants to move in beautiful, smooth precision. Given those requirements, Rae did an extraordinary job. There are a lot of subtleties, like having the head remain stationary as the body coils up behind it.

"We shot all of the background plates on 35mm," Munro says. "One of the myths in the industry is the use of big format plates, but unless you have a printer that is able to reduce and composite at the same time, what you gain in image size, you lose in extra generations. I haven't found the difference worth the trouble of having another camera and camera crew. One of the reasons things worked out so well from the standpoint of shooting plates was that we did registration tests on the Panaflex Gold and found it to be extremely steady. So, basically, all the plates were shot during principal photography with the same camera we were using for everything else. There weren't any problems with compatibility of lenses and it made it very easy to just tell everybody to stand still. It afforded us the ability to shoot plates as protection in case we decided to spruce it up a bit."

The opening of the movie required a transition from a real town to a model within which there is a very large spider and

human hands. According to Munro, "The decision was to try to blend live action footage of the real town and be able to segue into the miniature without being too obvious. The method was to build a section of the miniature in a scale that was considerably oversized in comparison to the final spider and final house. Knowing that the scale portion would be able to stand up to greater scrutiny, we also built a quick forced perspective transition that could be hidden by the tilt of the camera.

A big problem was that real spiders don't perform on command. "Having had previous experience toying with spiders, I knew that we were in for an endless number of takes before we'd get an acceptable result," Munro winced. "We tried everything to get the spider to move on cue: heat, puffs of air, people blowing on them off camera, little wires and sticks to prod them, but, alas, spiders don't want to do anything unless they are damn good and ready."

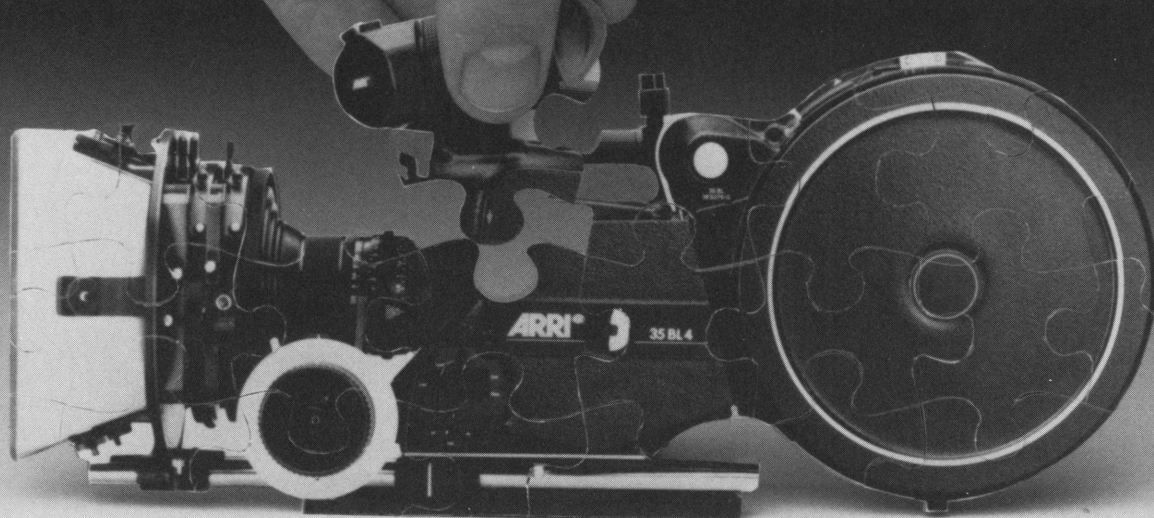
Munro feels that the optical effect that offered the biggest challenge and yielded the most memorable shot was the Beetle-guese head spin. "This was achieved by first shooting Adam and Barbara looking in horror at an empty set. We recorded this on video and, several weeks later when we stood Keaton in front of the blue screen, we used the video to line up the shot and get the scale right. First we shot a clip of the actor starting and finishing the action of the head spin, so he would whip his head to the side, straighten up, pause for several beats, then grab his head and pretend to stop it.

"After we got those pieces of film which we also recorded on video, we put Keaton on a turntable on the stage. We centered him up and basically ran him like a rotisserie, spinning his whole body around. We shot at four frames per second, and got about a dozen good revolutions before he got too dizzy. We took the spinning head and rotoed out the rest of his body and shoulders and had an element that was just Keaton's head spinning.



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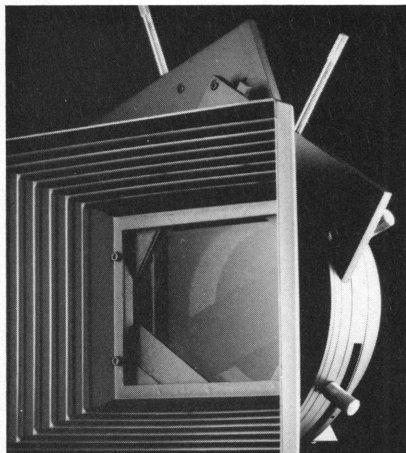
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"Then we took the element of Keaton standing and matted out his head in the middle portion of the shot, using his head whip to bring in the spinning element. So we dissolve his real head out and bring in the spinning head which is now running as an element on his old body, and at the end of the shot we quickly dissolve it out as he grabs his head to stop it. The end result is a shot with one continuous motion where he turns, his head spins and he grabs it to stop it in a seamless fashion."

A somewhat similar technique was used to show Keaton's head shrinking at the end of the film. It was achieved by building a couch that had a fixed, headless upper body puppet of Betelguese. As Munro recalls, "We had an actor pushed through the couch to give some leg and arm movement and positioned it in the set, so we had a shot that was like any other production shot, with background and other characters, the only difference being that there was a character in it without a head. We then took that piece, went to the blue scene and lined it up at a match point. We then zoomed back with the camera to achieve the head shrink."

"It was a little tricky to set up because zoom lenses don't zoom in a perfectly linear fashion except in one sweet spot in the lens. We had to find that one spot so his head wouldn't be moving up and down during the shot. We knew that we wanted his head to shrink on the axis on the base of his neck so that it wouldn't bob up and down. We didn't want to reposition the head in every frame, for obvious reasons. The magical mathematical formula that we used was to screw around with it for several hours the night before to find the right spot."

All the magical mathematics in *Beetlejuice* work to perfection, as the continuing popularity of the film testifies.

(The author was a sculptor/puppeteer on the production, and therefore was privy to close observation of the special effects and their creation for *Beetlejuice*.) △

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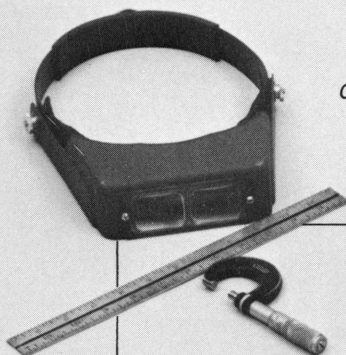
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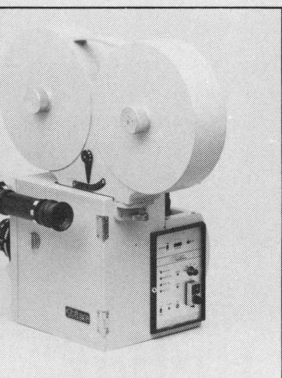
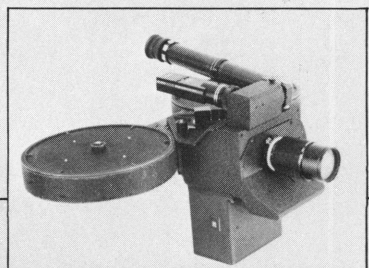
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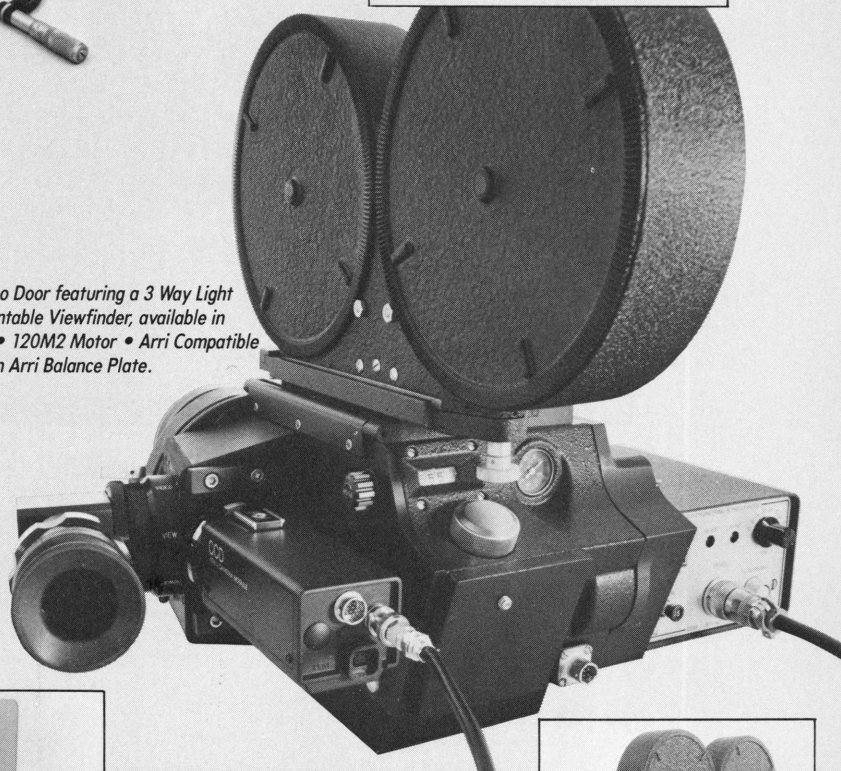


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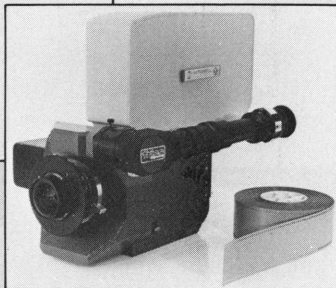


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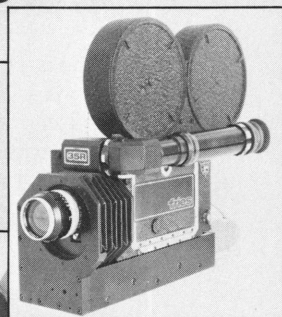
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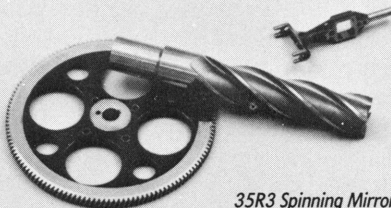
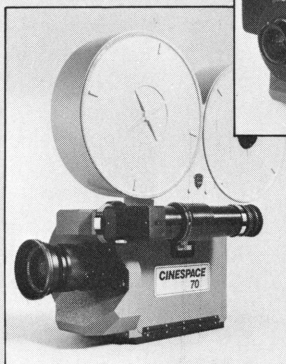
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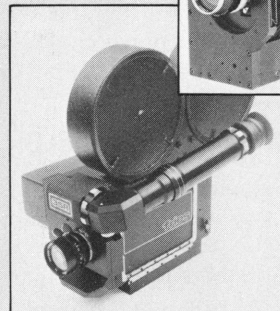
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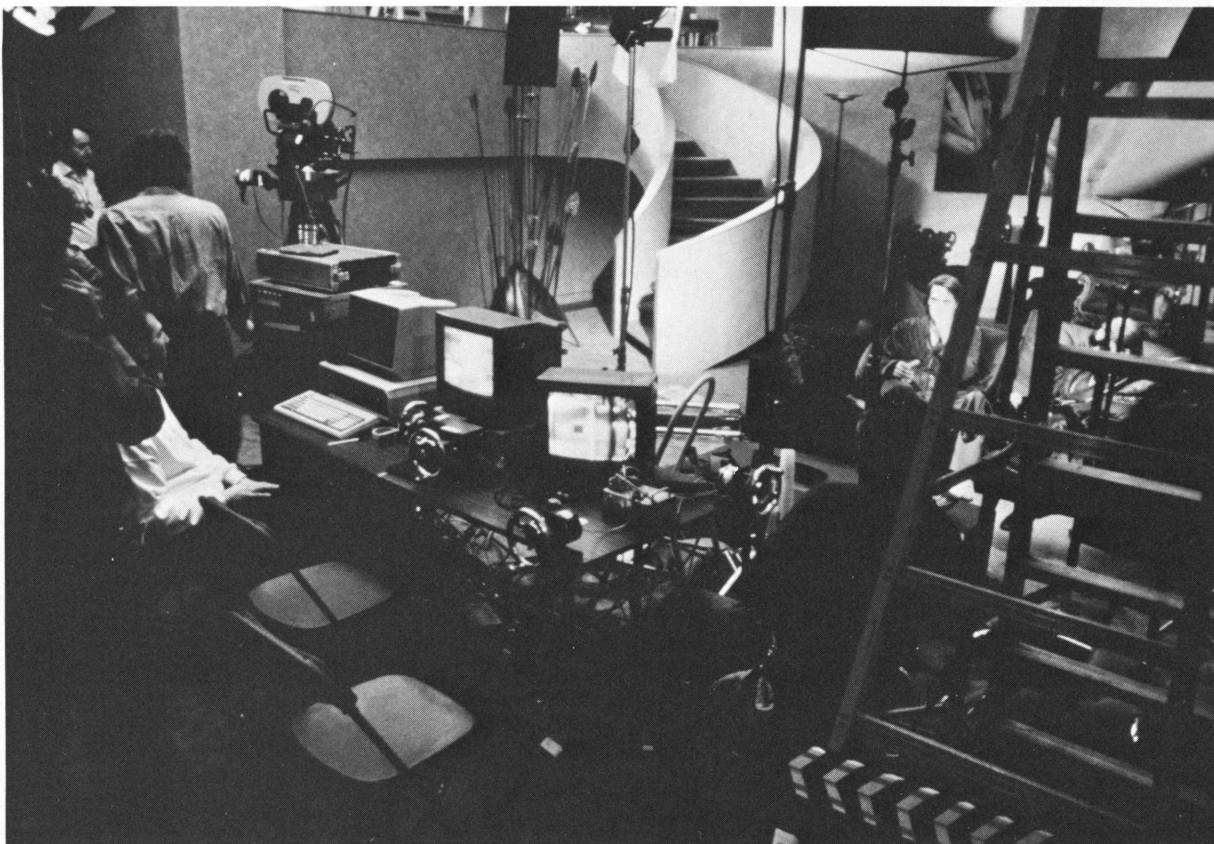
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Photos by R. Palin

# Visuals for *Dead Ringers* Inspire Belief

by Nora Lee

The superb performance of Jeremy Irons as twin brothers in *Dead Ringers* cannot be diminished in any way by the equally superb technical work which creates the physical illusion of twins on the screen. Without the first, the second would have been meaningless. Without the second, the first would have been flawed.

*Dead Ringers* is the latest offering from Canadian director David Cronenberg. Cronenberg was attracted to the darker side of the relationship between twin brothers in this psychological horror story. To explore this relationship cinematically required the use of a very old special effects technique – the split screen.

Lee Wilson of Toronto was the optical effects supervisor for *Dead Ringers*. Wilson worked closely with George and John Furniotis of Film Effects of Toronto to develop some new twists to this time honored technique. Wilson and the Furniotis brothers pushed the technique to new heights – “invisible traveling soft split-screens.” The technique allows the actor(s) to move around in the frame, with the invisible split following the action. No longer are the technicians dependent on a strong vertical element to hide the split.

Says Wilson, “We did some tests before production to see if we could move some splits in a static shot to accommodate the ac-

tors. Rather than shoot the scene with the actor playing one side, then shooting again with the actor playing the other side and locking him into a position in frame, the camera was locked off so you wouldn’t get the feeling that they were standing in telephone booth slots and couldn’t move from side to side.

“We also wanted to know if we could introduce the split after the scene had already started. Normally when you see a split screen shot, the split is already there when you come to the shot. You see the scene from one angle so there isn’t any jarring in the image that would clue the audience that something has happened. Once we found that





Opposite page:  
Cameramen adjust  
lighting on Jeremy  
Irons and stand-in  
for motion control  
shot. Left: Irons  
rehearses first half  
of tracking shot.  
Balsmeyer oper-  
ates camera and  
Palin hovers over  
camera system.

the split could be dissolved in slowly, then the question was how many times can you do that within the scene without giving it away?"

The actual mechanics of the split were done in post-production as an optical process. Though there are only about 14 shots in which the twins appear together, they are crucial to selling the idea that there really are two people, not one.

Equally crucial was the set-up for each shot. Wilson explains, "When we would shoot the scene, Jeremy Irons would play his one character off an acting double in order to get feedback and an eye line. And then he would play it the other way around. His voice would be recorded the first time he played the scene and he would have the audio man (Brian Day) set him up with a bug in his ear so he could listen to his own voice in playback as he acted the second role."

Every shot was done right on the set. There is not a blue screen in the film, according to Wilson. To insure placement and to perfect the choreography of each scene, "we

had a video assist system that I put together with David Woods in charge and Maryanne Simmons assisting, a full switcher and time base correctors on set, so that when setting up the shot, we could put up a split screen on video from the feed coming through camera and you could tell if there was a problem immediately," Wilson explains. The scene could be rehearsed and after shooting the A-side of the shot, the sequence would be played back and a live camera thrown up on the B side permitting comparison of what was already on film. The second half of the scene could then be blocked out according to the first shot. "That worked out quite well," Wilson says. "We really used video to good purpose."

Interestingly, none of the scenes were storyboarded. "It was my job to try not to limit Jeremy in the blocking. Cronenberg would show me the shot and ask if there were problems and, of course, I always wanted to say 'No', but that is hardly possible. He did understand the process as well as anyone involved – its potential and its

limitations.

"It gets to be like playing chess on three levels, where you say, 'I can eliminate this from the frame because we've already got that side of the shot and it won't be seen again, so it doesn't matter.' Or 'We don't really need the double here now, because his shadow is in the way.' And once in awhile you outsmart yourself. Sometimes something would be removed which you really needed for the second side of the shot. A box of groceries, for instance. 'We don't need that anymore. That will make it easier for Jeremy if we move it.' But then a later crossover shows the box of groceries – this kind of complication keeps you hopping."

According to Wilson, Cronenberg always shot as if he had two people. He purposely refused to include shots that would call attention to the special effect of twins. Each day decisions were made on the set as spontaneously as possible whether a specific shot should be a "twinning shot." "We often had twinning shots which didn't work well, and they were



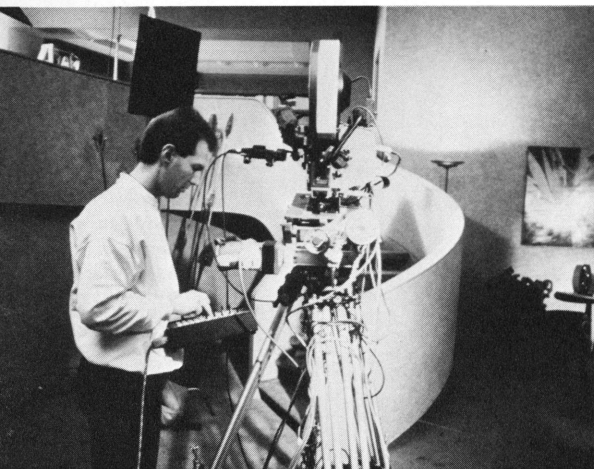
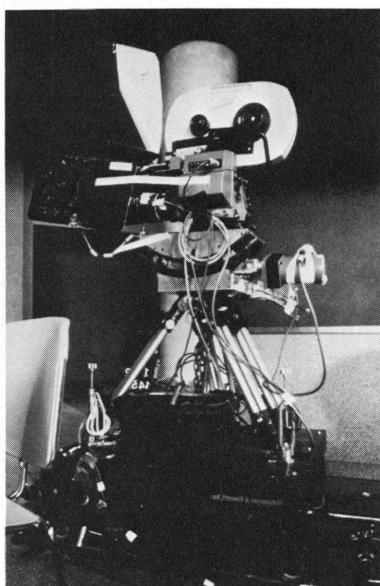


Photo by Attila Dory

**Above:** Balsmeyer uses Tondreau jog-box to "home" the motion control camera. **Right:** Motion control rig ready for dollying shot. Note sync interface to camera.



eliminated," Wilson admitted.

The tricky part, of course, was trying to decide if what had been shot was really going to work. The video assist was very important to this process but so were the dailies. "We would screen rushes of the separate elements of Jeremy playing both sides of the scene and they would be sent off to get a color slash done. They were just prints from prints with him on both sides of the rough split. Between the two, the editors got an idea of how the performance was working. One concern was print weave and jitter, although we did use a neg.-perf. stock to try to stabilize it more.

Wilson and company used a Panavision camera for the locked off twin shots and Eastman 5247 filmstock. The camera was regularly tested for registration.

Said Wilson, "It is amazing to find how easy it is to get some movement on elevated sets. A locked-off camera with people moving around the sets all the time becomes an easy target for wiggling, so we had it shored-up and walls built around it. There were so many things to watch for."

The twinning shots called for a close association with the director of photography. "Peter Suchitsky was the cinematographer and he made gorgeous pictures. There were times I was trying to not say 'Hm, I think we might have a problem with the split line here.' I didn't want to talk to him about his lighting because it is beautiful stuff, but once in awhile there would be an area of lighting cross that wouldn't work in terms of the optical. So, I would try to find a way to change the split. He was a great help in hiding things for me from time to time."

Not all the twinning shots in the film were done with a locked-off camera. Some were done with a motion control camera. A moving camera was another way to hide the special effect, since normally the camera does have to locked off. A precisely repeated movement meant that Irons could act the A role with the camera moving. Once the camera was programmed, he would act the B role with precisely the same camera movement. When the two elements were combined, the camera move was perfect and the split virtually seamless.

"When it got to the motion control shots, we called on Randy Balsmeyer and Mimi Everett, [Balsmeyer and Everett of New York] whose real time portable system was just what we needed," Wilson continued. "We didn't want a huge I-beam dinosaur that would have to be forklifted into the building. We needed something similar to the regular filmmaking process, such as their machine, which uses regular track."

Balsmeyer explained the origins of his real time system: "We commissioned Joe Lewis at General Lift in Los Angeles to develop a motion controlled dolly which would produce precisely repeatable

moves, at high speed, on standard Matthews round rail dolly track. Marvin Midwicki pulled focus with a remote dial, using a lens-mounted video camera to see his marks. Carlo Campana was the key grip who controlled dolly motion with an accelerator-like control similar to a T-bar. Gear ratios and damping were adjusted electronically, so each member of the team had a control that felt right for the shot.

"By integrating the crew into the motion control setups," Balsmeyer continues, "they were able to follow the action on the set just as though they were using manual camera controls. The resulting shots have a very human look, instead of the mathematically perfect, but lifeless, look which has previously been associated with motion control shots."

(Balsmeyer and Everett's contribution to the film did not end here. Once principal photography was completed they were commissioned to design the opening title sequences for *Dead Ringers*. These were replications of a series of engravings from 14th Century medical texts, superimposed over color frames which exhibited the main credits. The titles were shot on a Mechanical Concepts boom arm rig, using camera bi-pack mattes, so that the images are combined on original negative.)

Wilson was enthusiastic about the motion control work from which a moving camera and a moving split were both possible. "The split screen must move according to the camera. We did a pull focus that was kind of neat - a pan and pull focus from one twin to the other. This was a test that I had done after I had seen the motion control equipment in New York. It helps to erase the split line by going from one frame to the other," Wilson adds.

Wilson gave some examples of the use of the motion control. "We used it in a shot with the two twins walking side-by-side and the camera dollying back. We added some little things going on to help erase the line between them.

"When you use motion



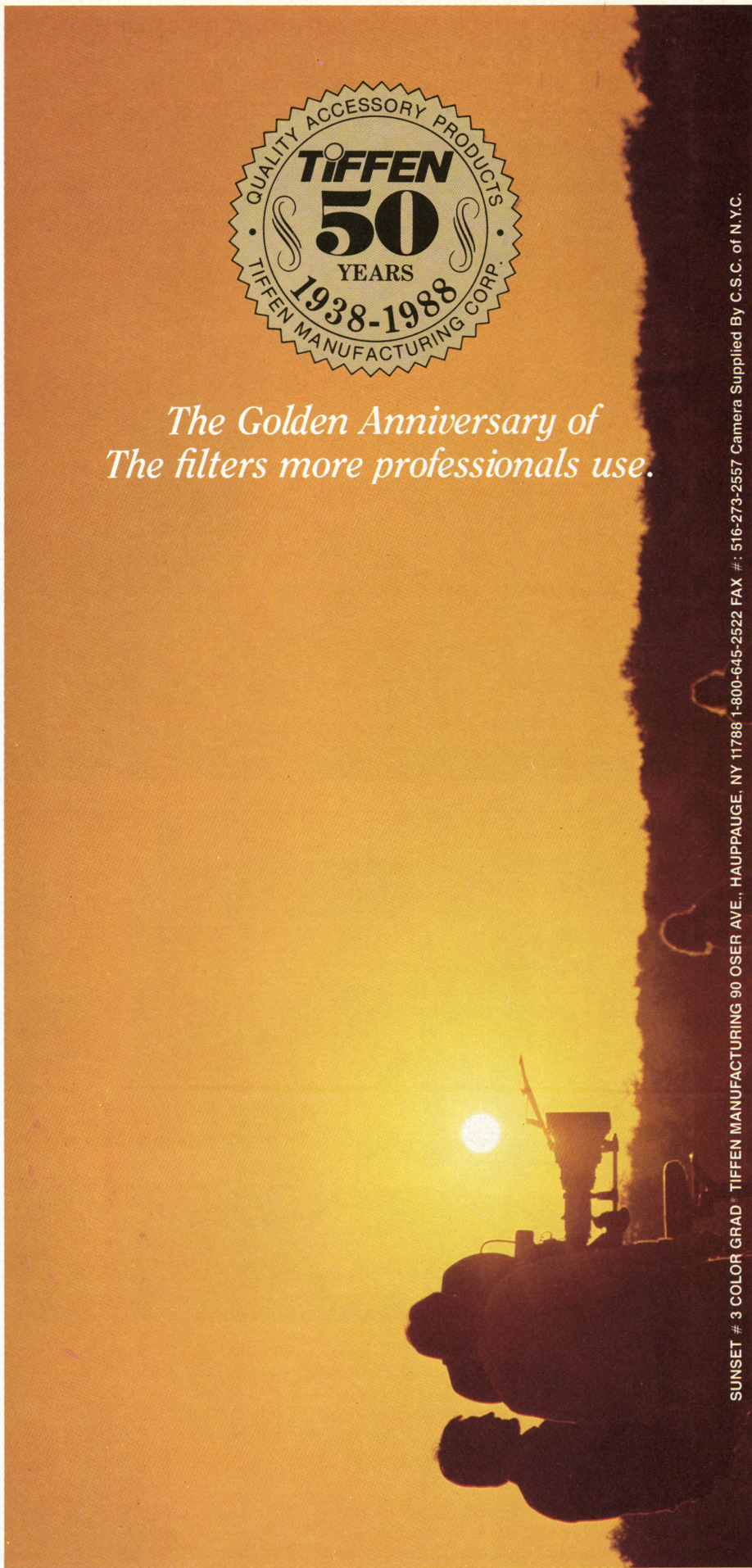
control in a dolly shot, for example, the camera is moving back and the actor is trying not to walk on the track, trying to keep his pacing right, trying to keep to the one side of the shot so that we can lay down the A side of the shot. Then once you've got that first shot, it has been so dictated. That's the way it is. So when Jeremy has to do the other side of the shot, he has to be conscious of where his 'brother' was. In a move like that, there is a lot going on. We did quite a few takes making sure one 'brother' wasn't walking faster than the other, not crossing each other's split lines. However, in any motion control shot once we got the first side, there was nothing to think about as far as the camera move was concerned. That was locked in. The nerve wracking part was getting the second half of the shot."

Wilson continued, "After the first shot, Irons would run off, get hair and make-up and wardrobe changes, and during that time we would pray the earth didn't move! In one twinning shot, for instance, we had a set with big windows and daylight coming in. In the time it takes to change the actor from one role to another, no matter how still the set is, the light changes just enough so that it is noticeable." No outdoors twin shots were called for in the script, although they could have been done, Wilson pointed out.

The live action shoot was just the beginning for Wilson and the others. It was only in post that the shots really began to work. "Once the slashes were agreed upon, then the final optical work began. They rotoscoped everything at Film Effects. They mapped the location of the split all the way through the scenes. Variations were tried on the splits – like whether we would use hard edge or feathered splits. Sometimes it depended on the kind of surfaces – like how high-key the backgrounds are. We had done a number of tests where we tried everything from stainless steel to venetian blinds – anything – even giant registration charts! The process itself, while very finicky for John and his people, simply



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# *My Stepmother Is an Alien*—Sci-Fi Comedy

by David Heuring

Richard Kline, ASC, in his work as a cinematographer, is following in his father's footsteps. Benjamin Kline, ASC, photographed literally hundreds of films and television movies, including *The Fury*, *The Man They Couldn't Hang*, and *The Man With Nine Lives*. Later, Kline directed many of the Charles Starrett Westerns for Columbia. The younger Kline says his father was influential in getting him started in the business, but originally Richard had his sights set on law school. He

picks up the story: "When I got out of the service, the studio called and offered me a job in Acapulco for several months. So I decided I could go to law school a little later. The job happened to be a marvelous Orson Welles film called *Lady From Shanghai*, and it was one of the most momentous experiences of my life. I can tell you now that I am very happy that I'm not a lawyer."

Kline has accumulated an impressive credit list of his own, including *Star Trek: The Motion Pic-*

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Produced by Franklin R. Levy and Ronald Pearlman  
Directed by Richard Benjamin  
Richard Kline, ASC, director of photography

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*ture*, *Body Heat*, *Death Wish II*, *Breathless*, *All of Me*, *Camelot*, *The Boston Strangler*, and *The Man with One Red Shoe*. Kline now shoots one feature a year, and spends the rest of his working time on commercials. This year, he brought his wealth of tradition and experience to a new film, *My Stepmother is an Alien*.

Kline describes the film as a "comedy/fantasy," for which he was to provide an element of realism. Approximately one-third of



the picture was shot on practical locations, including the futuristic GTE building in Westlake, Anaheim Stadium, and Hermosa Beach. Most of the remainder of the sets were built at Twentieth Century Fox's massive Stage Six. "That's what interested me in the project," Kline says. "Not only was it an amusing script and a great cast, but it was an opportunity to go for realism. It wasn't just a pure comedy look – this is going on the big screen. The script gave us many opportunities for interesting visuals – night work, rain and lightning effects, early morning moods – and the point of the film is to entertain people. I lean towards entertainment films, and if they have visual substance, that's even better."

Heading Kline's equipment list were Panavision cameras and the Superspeed lenses. "We stayed with the good, consistent standard Panaflex equipment," he stated, "and used the three basic Eastman stocks – 97, 94, and 47. We also used the 95 for some of Apogee's work. It's nice when you're accustomed to these emulsions, and you know quite well what they'll do, particularly if you use the same lab. We used CFI for the front work, and they did a very nice job. I use CFI when I do commercials, and it was a welcome relief to use them again."

"The approach to lens choice is difficult to put into words. We did use some long lenses, but in this case there was a story to tell, so one couldn't really confuse the issue with beautiful pictures that don't really tie in. This is how commercials are done. There isn't really a story per se, you just want to attract attention, so a beautiful picture is good. You can do almost anything in commercials – long lenses, smoke, et cetera. But in this case, the camera was really the framework for a story, so we complimented that story. Lenses are then used more to force the eye to see what I want it to see. I may use a long lens to focus attention during an emotional moment, or to take something distracting out of the background."

"I think I used less filtration on this film than any film I've done," continues Kline. "Partially because of the realism approach, and also because we did have some decent skin tones, and we didn't have to cover up any foibles in the actors. We were able to make a very sharp film out of it."

Kline describes his lighting style as one of precision. "There are different lighting styles, of course. There are some people who prefer to light a little looser – they bounce it off the ceiling, and the actors are free to move almost anywhere. It's not always the most flattering, but it can accommodate the moment. Sometimes you need to light a certain way to give an actor the freedom to float in the scene and still look cosmetically interesting and acceptable. But whenever possible, I prefer to light with precision."

"My technique is to light through the camera until it looks right, and then check the meter. However, I think many photographers are too dependent on the meter – they'll read every moment. But everyone's skin accepts light differently, so the meter doesn't really count; it's a starting point. I can light a person in a chair, and shoot five different people sitting in that chair in the same light, with the same readings, and come up with five different exposures. So sometimes you have to forget the meter,

and adjust for skin tones in relation to something else in the scene."

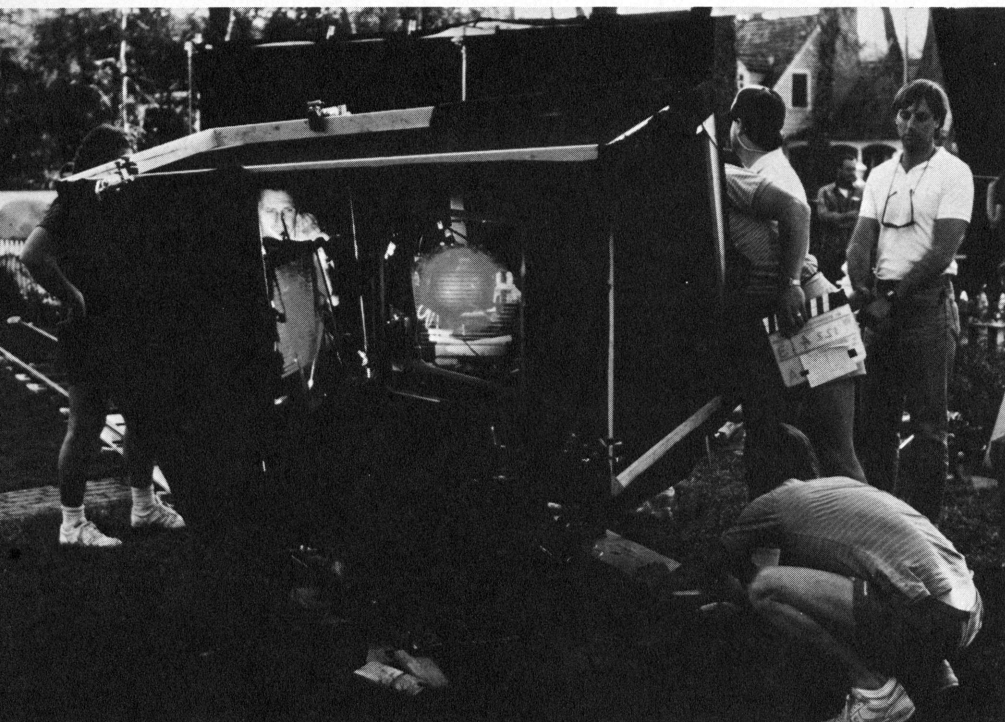
In addition to his extensive preparations involving special effects for the film, Kline conducted a test shooting of the principal actors. "I almost insist on some test footage," he relates, "mainly to see how the makeup's going to look, and to familiarize myself with the actor or the actress. They all have something different, some idiosyncrasy, that I need to know. A common example is a body list. Often, you'll light the stand-in, who will stand very straight and tall, and when the actor comes in, he'll lean just a little bit one way or the other. Some actors hold their heads up before the scene and drop them down just before the camera rolls, and others do just the opposite. Some have a certain lope in their walk, or a way of cocking their heads when they speak. If you're attentive, you can learn many of these characteristics before you're under the pressure of principal photography."

Kline discovered the importance of these subtleties during his years as an operator. "When I operated, we didn't have reflex cameras, we had the old finders on the side," he recalls. "So what you saw through the finder was not the same through the lens because of the parallax. So I'd have to study carefully the leaning or standing characteristics of the actors in order



Opposite page: Kim Basinger, as the alien, dazzles her earthling co-stars. Left: Jon Lovitz, Wesley Mann, and Dan Aykroyd during a frightful moment in the *Klystron* room.





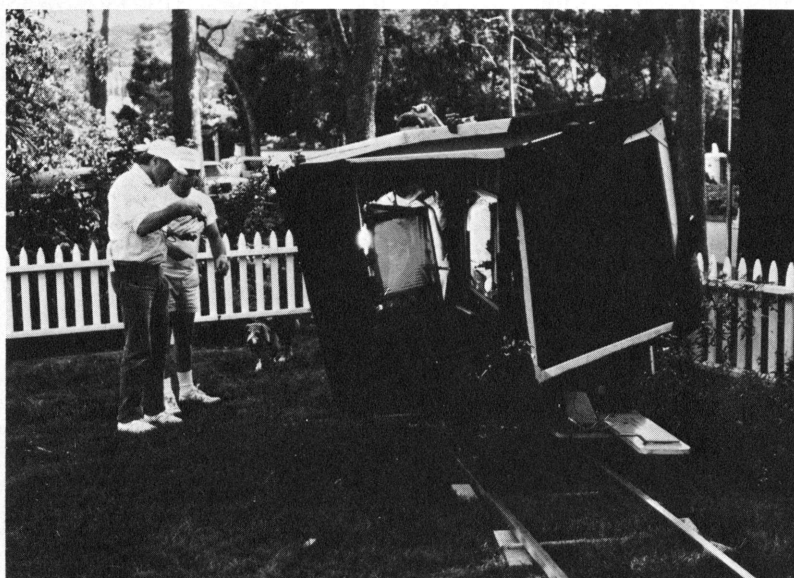
have to be conscious of what we're trying to do for them, and help the cause, not fight it."

When discussing the intricacies of a special effects-laden show such as *My Stepmother is an Alien*, Kline continually emphasizes the importance of communication, coordination and preplanning. "For *Stepmother*, we worked in very close contact with the main people at Apogee – John Dykstra, John Swallow, and Grant McCune. While we're filming, various members of their staff come on the set and work with us, using their motion control systems, shooting the VistaVision eight perf system, incorporating their various models. So in order to get a continuity of look, we have to heed to whatever they request. All effects houses work a little differently, so their requirements are very important, and precise coordination is essential. Going in, the planning is done by sketch artists, myself, the director, the production designer, and Dykstra and his group. So we had an extremely close relationship with Apogee from the beginning."

Kline's adaptability to Apogee's special effects requirements extended to the actual effects stage. "When we went to Apogee, I did the subject lighting on all of John's shots. If there was a blue screen involved, it was their responsibility to balance the blue screen. Of course, any of the production footage is my responsibility. If there are effects involved, I have to take that into consideration, in coordination with John."

On the set, Kline's adaptations for effects were numerous. Often, he would introduce reactive lighting for objects and sources which weren't actually present on the set. These were to be added later by Dykstra and his effects crew. "In one scene, Dan and Kim are in bed, and Aykroyd looks up and 'sees fireworks.' Apogee produced and superimposed the miniaturized pyrotechnics for the scene, but we put the reactive lighting on the two of them in bed, as if it came from the fireworks going off above them. Again, our preplan-

Above: The beam splitter rig used by Kline to light up the "bag/worm." Here the bag shows its anger at being buried by a dog. Right: Kline sets the rig up for a tracking shot.



to compensate for the parallax. I've also discovered that attention to those characteristics is also important in lighting, particularly in a precision lighting style. This also helps prevent the actors from being out under the lights too long – they need the rest and they appreciate it.

"I think most actors can tell when a DP is trying to find the best light for them. I remember the first woman I ever photographed – Lillian Gish. She was an elderly lady then, probably in her late 60s. I

lit the stand-in, and she came in, sort of wriggled through the scrims, held her face up and found the light herself. A good, experienced and thoughtful actor will know which way to turn and find the light anyway. Henry Fonda, whom I worked with on *The Boston Strangler* and several Westerns, would do the scene exactly as you lit him, because he knew that was good for him. I hope actors today take that into consideration, that's it's not all just speaking words. They

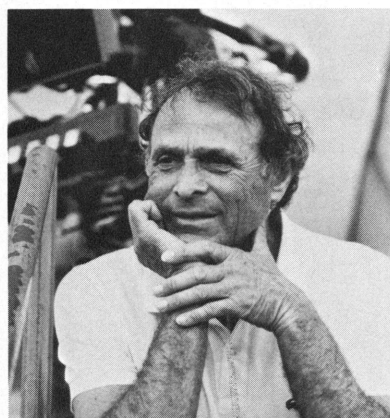




Left: Basinger is the center of film crew's attention in Anaheim Stadium. Below: Richard Kline, ASC

ning for the scene gave us a rough idea of what to do. We had decided on a palette, the colors that would be used for the fireworks. We set up multiple lights that could be brought up and down with dimmers. This way, the color values actually lit up the room – they would blossom and fade on the walls, bed and actors. The fireworks alone would have looked obviously superimposed and lifeless.”

A similar reactive lighting situation arose in scenes calling for the spaceship to land or take off. At Hermosa Beach, the crew dug a pit in the sand, about 30 feet in diameter and six feet deep. Again, dimmer-controlled lights were used, and as the imaginary spaceship (to be added later by Apogee) theoretically got closer, the lights were brought up. The lights were aimed up through a scrim, into a 30x30 silk, which illuminated the disk portion of the spaceship. To give the ring of light a graduated look, rather than a hard edge, Kline put 10K's on parallels to taper the light away from the rim. In the scene's final form, the lights come



up as the ship descends, and cool down as it touches down and shuts off.

“We had the same situation when the ship lands in the GTE parking lot,” says Kline. The reactive light has to hit everything, including the people in the area. Again, this was all planned beforehand. We imagined what John's spaceship would do to the environment, and I created it and put it into the shot.”

Close coordination with Apogee was again required for the scene at Anaheim Stadium, in

which the alien planet's elders appear to Basinger. “We designed the scene to go from day to night. It was deemed that the scene would play better against a dark background. We made the scene go from day to night, and Apogee superimposed the B-footage of the elders, shot on a stage, with a black backing and a VistaVision camera.

“To get the day to night effect, we used the simplest possible method. We just took the shutter on the back of the Panavision camera and slowly closed it. It was wide open in daylight, and we just took it down to night. At the same time, we used HMI's for the equivalent of stadium lights coming up. So the whole source suddenly changed from late afternoon day to a mystical night. There was a problem, though, with this scene. We went longer than we expected, and night fell before we could finish. I had to take some time and use the stadium lights to recreate what the sun had been doing prior to night-fall. It was something that I hadn't planned on, but it worked out very well. Despite our planning, I just



Right: Steve (Aykroyd) and his daughter (Alyson Hannigan) are served a healthy breakfast by the alien. Below: Lovitz, Aykroyd and Basinger at the interplanetary nuptial.



had to pull this one out of the air."

"The worm," Kim's odd-looking companion and advisor, had many scenes and presented Kline with some slight difficulties. "One of the problems was that it had to be maneuvered from below the purse, through a hole," says Kline. "Of course when we shoot a film, we generally shoot in two me-

diums: normal 1:1.85, and then the television format. We had to put a hard matte in the camera to block off the areas above and below the television area. If we set the shot up with the bottom of the theatrical frame halfway through the purse, the bottom would still show up on TV. So we masked that out with the hard matte. This way we cut a little

off from the TV frame, but not enough to matter."

The worm advises Basinger on the strange customs of the human race. Images which are designed to be instructional, but are hilarious to the audience, are projected onto thin air by the Apogee crew. Of course Kline had a strong hand in the scene as well. "For the scene in which Kim is taught to kiss, we selected archival 'kiss' material," he relates. "We planned it so that during the scene, she could refer to the images projected just offstage. This way, she could watch a nonexistent screen, imitate the kisses, and try to learn the art of kissing. Later, the projected images were added to the scene by Apogee, and they matched Kim's mimic correctly. We also preplaced some reactive lighting in the scene, so light from the projected image seems to play in the room, much like a television set would."

Kline pulled out his bag of tricks for some of the purse shots, which required the handbag to light up in various colors, repre-



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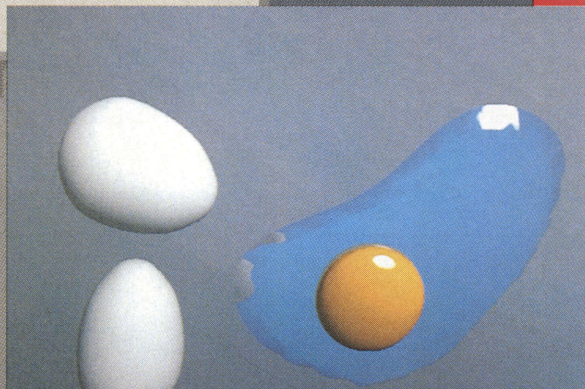
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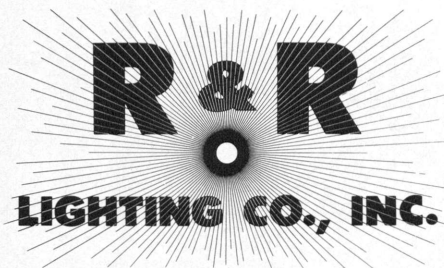
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senting different emotional states of the enclosed worm. To light up the bag, Kline used an application of front projection technique. "I put some of the 800 Scotchlite material on the side of the purse," he explains. "The tiny lenses on the Scotchlite reflect light rays back in the exact direction of their source. The purse was then covered with a polarized gel, and the camera fitted with a Polascreen. The camera was then rigged with a beam splitter, which was built specifically for these shots. Then the desired light was projected through the beam splitter. It would only take effect when the Polascreen on the camera was in the right position. So the color of the purse could be controlled by zeroing on and off with the Polascreen. There was slight diffusion on the camera, which helped to give it a little bit of a halo. It's an old technique, really, but effective for these scenes."

Kline has kudos for production designer Charles Rosen, whose credits include *Taxi Driver*, *Flashdance*, and the recent success, *Broadcast News*. "Chuck is a talented designer with a true gift for realism," Kline says, "and he knows where to find it. He helped find the wide variety of locations, and was able to match them on the stage. It was a pleasure working with him."

"Making a film, or any kind of photography, is constantly altering, adding or subtracting, and dealing with the moment. There's no book that can really tell you what to do. It's like being a surgeon - he studies the book, but when he opens the patient, he may see something he didn't expect. He has to act quickly, because the patient is split open. You can't sew up the patient and say 'we'll come back later.' Making a film is like that in some ways. We're there, we can't just wrap, go home and regroup. We're committed to do it on the spot."

△



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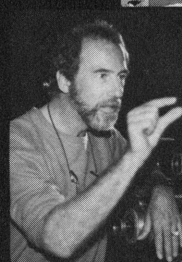
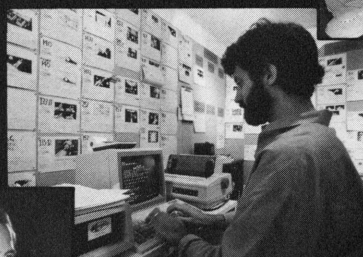
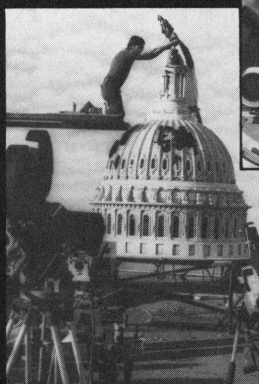
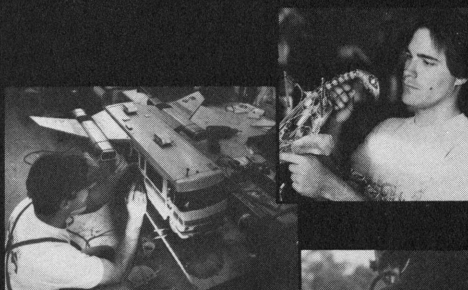
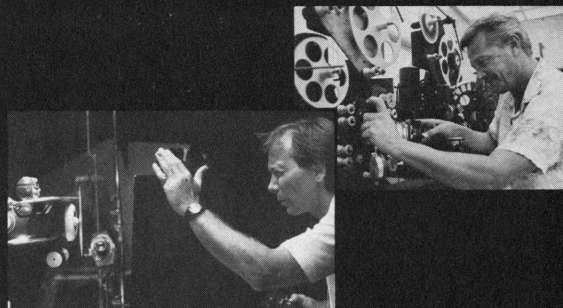
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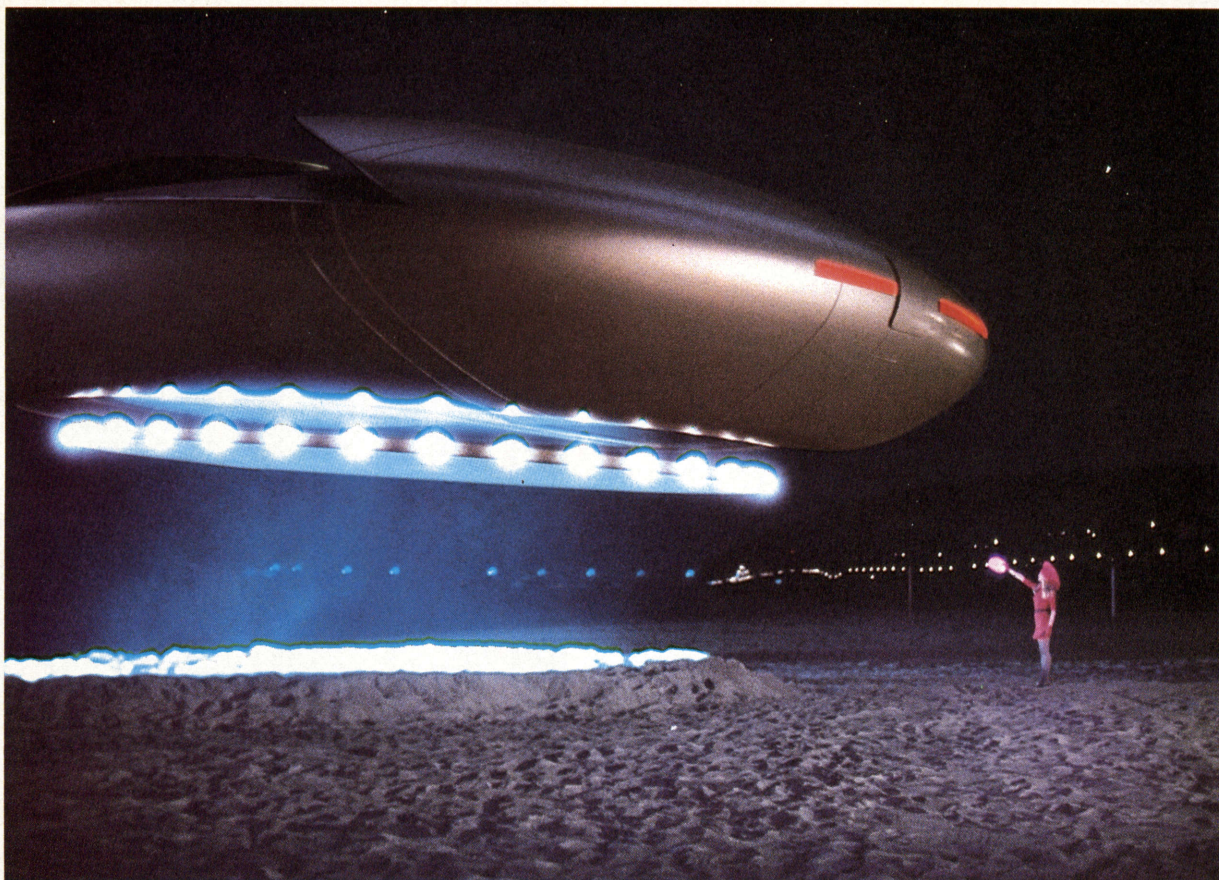
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Photos courtesy Apogee

# Full Array of Tricks for *Stepmother*

by David Heuring

The creative and technical experts of the special effects business face a daily paradox: the more effective and believable their work becomes, the more is required of them. To audiences that become more sophisticated and demanding daily, last year's "slick shot" can seem phony and obvious today. A combination of creativity, technical expertise and large R&D budgets keep the effects houses just out of reach of their own Frankenstein's monster.

As is common to scientific

endeavor, advances are made a bit at a time, with slight and subtle alterations to proven techniques. The well-publicized quantum leap is usually the result of many small steps. John Dykstra's Apogee Productions, in their recent work on *My Stepmother is an Alien*, applied a number of new wrinkles on tried and true effects techniques to a funny, off-beat script and came up with a raft of entertaining and convincing special effects.

Dykstra is no stranger to the quantum leap. Apogee's head

honcho played an integral role in the development of motion control photography. His well known work on *Star Wars* permitted the camera to move in a precise and repeatable manner, and allowed the shutter to remain open during movement of the subject, blurring the image. This blur or "smear," which occurs normally in cinematography, eliminated the stroboscopic jerkiness of previous single frame techniques. As in most of today's sophisticated effects shows, motion control photography played a big part in



Apogee's work on *My Stepmother is an Alien*.

Apogee's extensive contributions to *Stepmother* also included a wide array of miniatures, stop motion animation, matte paintings (in collaboration with Illusion Arts) and numerous animation enhancements. Although the crew's approach to their work is focused and intense, at Apogee, the creation of the grand illusions of motion pictures is business as usual.

In *My Stepmother is an Alien*, Dan Aykroyd plays Steve, an unsuccessful scientist whose dreams of making contact with a faraway planet are fulfilled in a freak accident. Unfortunately, Steve's beam affects that planet's gravity, and the natives don't appreciate it. The planet's technologically advanced residents send a beautiful emissary named Celeste (Kim Basinger) to investigate and eliminate this threat. Celeste is accompanied by a worm-like advisor, concealed in her handbag, which counsels her as to the ways and mores of humans. She finds that earthlings aren't such a nasty bunch after all, but her superiors, appearing to her as three ethereal "planet elders," insist on earth's destruction. With Basinger's awkward attempts at assimilation and Aykroyd's scientific bumbblings, *My Stepmother is an Alien* has plenty of opportunities for comedy. The story also presented Apogee with the opportunity to create a wide variety of spectacular visual effects.

Apogee's model department constructed a number of miniatures and puppets for *Stepmother*, including the spaceship; the planet Saturn (originally to be a matte painting); the radio dish, which sends Steve's signal to the heavens; a copy of the GTE building in Westlake; and the prop most likely to be identified with the show – the strange worm-like creature that plays the role of Celeste's guide and advisor. Rick Lazzarini supervised the ten-person crew responsible for the construction of the puppet. "The bag, as Celeste's connection with home base, has a pretty significant part," says Lazzarini. "It's in

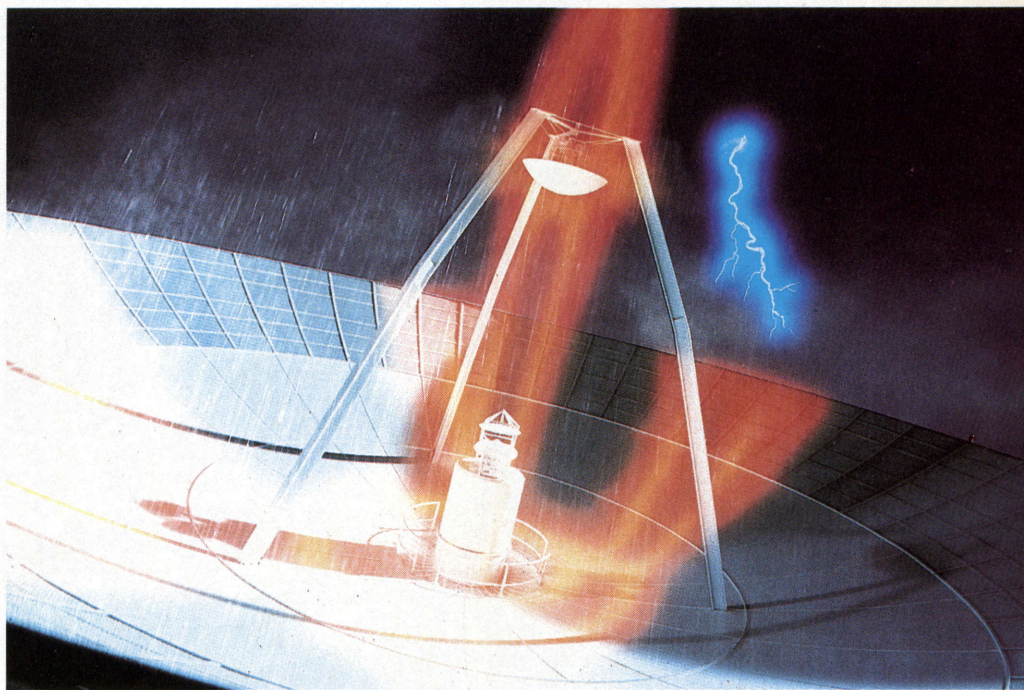
40 or 50 scenes. The bag comes alive through the use of the 'worm,' which has a large eye at one end. It was operated by two puppeteers, one working the mechanical movements, and the other controlling the lights and electric eye details with an electronic box. The worm's eye is able to light up and strobe or flash at different rates, and there are servos inside to blink the mechanical eyelids. There are also servos which move the eye from side to side. Mike Sorenson did the main mechanics. The worm was shot real time, live action. For the puppeteers, it was cramped quarters on the set, crouching underneath tables or scurrying along with Kim just out of frame."

In a climactic scene near the end of the film, the worm is destroyed by landing on the high voltage Klystron machine, which powers the radio dish. For these scenes, Lazzarini and the crew constructed a larger version of the eyeball, complete with motorized tendrils, gnarly veins, and a huge optic nerve. The translucent iris facilitates interior lighting effects to simulate the smaller, stalk-mounted version of the eye. In order to maintain organic movement, the tendrils operate on a very simple and time-honored principle. A

polyethylene wrap, dressed with foam latex, is slipped over a copper armature and anchored at one end. This combination can be bent to any curve, and when a variable speed motor turns the armature inside the wrap, the tendril twists and convulses in a realistic fashion.

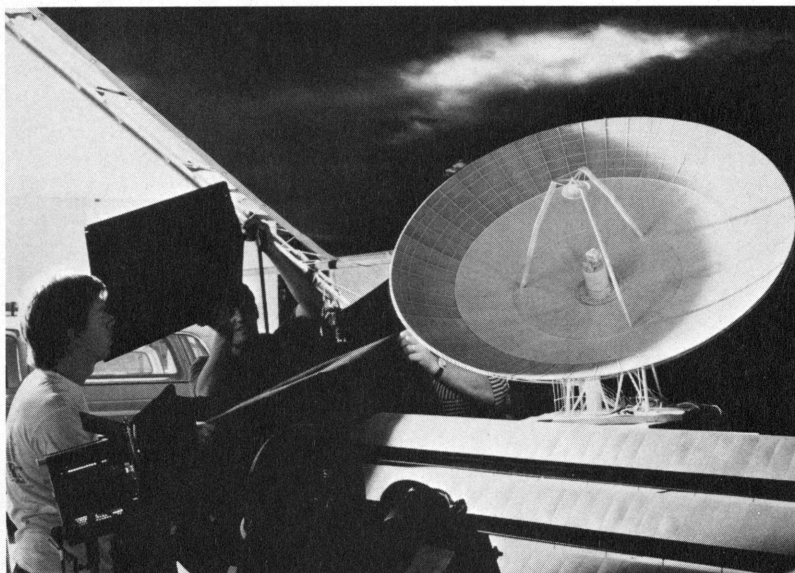
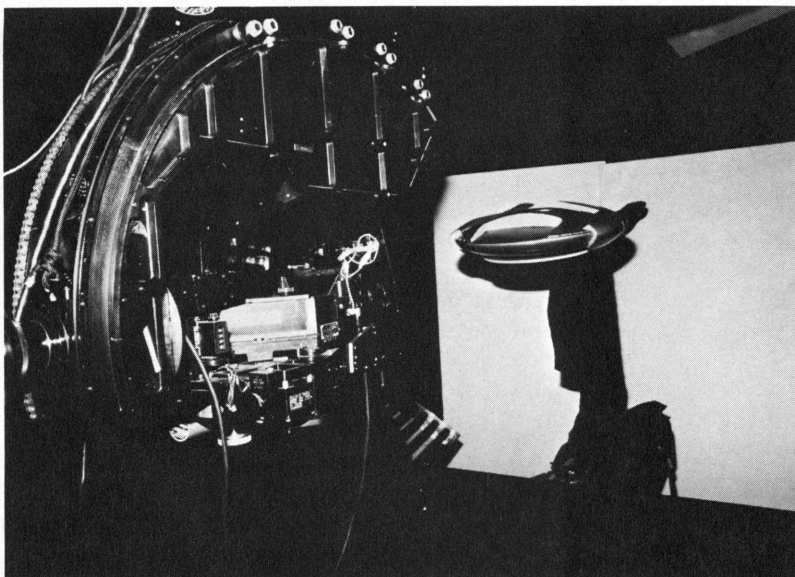
"When the worm lands on the Klystron, it goes nuts. The stalk starts waving around and the eyeball detaches. It starts to get bigger and bigger in frame, and then it corrodes and dissolves. To accomplish this, we made an 18-inch diameter eye using two Styrofoam globes. It started out rather pristine looking, with a network of pulsing bladdered veins. A methylcellulose mixture provided a nice sheen. Between the two Styrofoam shells we placed a plumbing system, which doubled as more veins. At the proper moment, a manifold pumped methylene chloride through the vein/plumbing system to the Styrofoam, which disintegrates on contact with the chemical. Methylene chloride's relatively nonflammable nature made it more appropriate than something like acetone. With acetone's volatility, we might have had a bigger destruction scene than we planned for," chuckles Lazzarini. "The destruction was shot at four frames per

**Opposite page: The alien spaceship, which flies in two unconnected sections, lands on Hermosa Beach. Below: The satellite dish, through a series of freak accidents, finally makes contact with another planet. The miniature dish is matted over the sky background plate and the colored beam and lightning are animated. (Composite frame blowups)**





Right: Celeste's alien spaceship on Apogee's motion control stage. Center: Effects cameraman Doug Smith sets up a pyrotechnical shot of the satellite dish. Below: Richard Benjamin, Kline, and Dykstra (at the VistaVision camera) preparing for a shot.



second, and you can really see the rapid disintegration of the eye."

Some of the funniest situations in the film take place on the radio telescope dish, where Celeste attempts to understand and take part in a certain human custom. When Steve asks her for a kiss, she asks the bag/worm/guide for a definition from its computer memory. Behind Steve's back, the bag projects visual information about kissing. The aliens have gathered most of their anthropological information through film archives, it seems, so Celeste and the audience are treated to a brief and amusing "film history of the kiss." What follows is Celeste's clumsy attempt to implement her new and somewhat sketchy knowledge.

Apogee's hand in this scene shows up not only in the worm, but in the projection of Celeste's instructive stock footage. The live action portion of the scene was shot by cinematographer Richard Kline, ASC, with chief modelmaker Grant McCune operating the worm and Basinger watching and mimicking an offscreen tape of the selected "kiss" footage. Roger Dorney, head of Apogee's optical department, explains: "We took the 'kiss' footage and synced it to the live action. Then we rephotographed it on the stage, front projection, made the mattes at the same time, and then put it in as a partial. It's not 100% in, or it would just look like a TV set. This way, the image is slightly transparent, and mysteriously hovers in the air." An animation effect brings on and takes off the hologram-like images.

More problematic for Dorney and the crew were the scenes involving the "planet elders," who appear to Celeste and discuss her mission's lack of progress. "We originally planned to shoot it blue screen, which would have given us more control later on," relates Dorney, "but for economic reasons we changed it to a simple double exposure. Three men, dressed in flowing white robes, hover against the night sky. During this process, director Richard Benjamin asked for more glow here, some partial den-



sity there, et cetera. We pulled a partial density matte, which wasn't too difficult with the black background, and created the desired image.

"The stars were added at the same time, which complicated things, and we did some minor repositioning. This time around, the edge of the elders' chair was noticed. So we softened that up a bit to eliminate the hard lines. Then it was decided that the council needed to be more 'ethereal.' So we made two passes of the council, one softened with Vaseline, the second with diffusion. This way they superimpose over each other without losing the detail. The effect is slightly out of focus, but sharp enough to see. If we had just added a single diffusion on the optical printer, everything would be soft.

"At this point, it was getting a little away from a straight double exposure," chuckles Dorney. "Several alterations later, including a rippling matte along the bottom to give them a more float-like appearance, we had our shot. It turned out very nicely, but we had to fight for it. None of these steps are difficult in themselves, but when you start compounding and redoing things, the opportunities for error increase geometrically. Our approach to this shot wasn't very high tech – it doesn't have a lot of computers or bells and whistles. Computers are great, but they are only one solution. Sometimes the old school is more appropriate – Vaseline, rubber bands, black tape. Once the initial look was approved, this shot just kept growing. It was difficult, but we made it work."

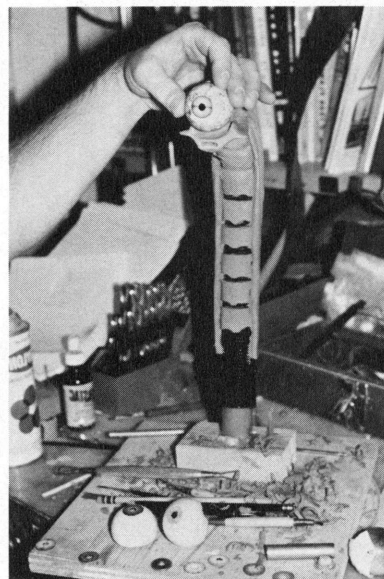
Apogee's animation work is sprinkled generously through *Stepmother*, representing lightning arcs, electrical discharge effects in the Klystron room, clouds and enhancement of natural clouds, the eyeball's attack ray, and more. One particularly notable application of animation techniques was a continuation shot of the departing spaceship. "When we build a model spaceship, to some extent the size is determined by the amount of detail needed," explains Dykstra. "Once



we get to the stage, of course, the size of the ship in the film is determined by camera distance. The scene required the spaceship to take off and leave earth, moving off into the night sky and reducing to a point of light. The size of the model and the length of the stage gave us our parameters, and the stage wasn't long enough to get the ship down that small. The solution was to do an animation hookup, where we take a still photograph of the miniature from the end of the stage move, and animate the final section, continuing the displacement off to infinity."

To come up with an unusual spaceship, Dykstra designed a "power disk," which flies in tandem with, but unconnected to, the main body of the craft. "They're joined by a magnetic force field, or whatever you want to imagine," laughs Dykstra, happy with the design freedom that the genre allows. "The main body rides just over the disk. When it lands, the disk settles first and then the ship lowers onto it, collapsing into one piece. Meanwhile, the energy and light coming from the power disk dissipate and 'cool down.'"

The unusual craft stars in several of the most complicated ef-

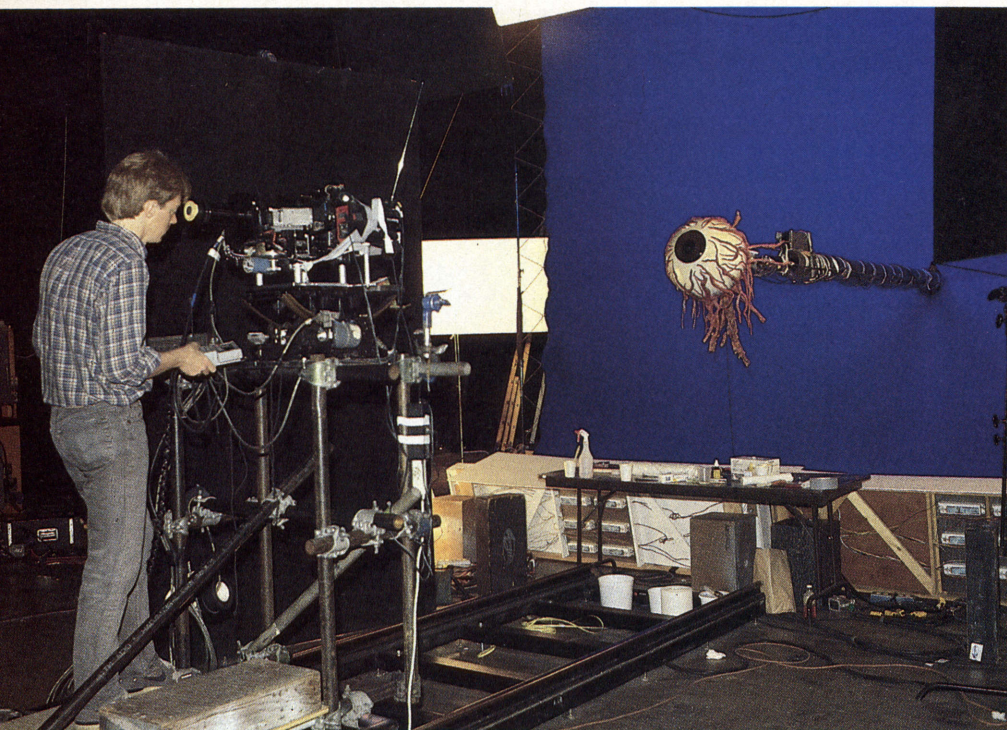


**Above:** Effects technician and animatronic eye supervisor Rick Lazzarini glues scales onto the "worm's" eye.

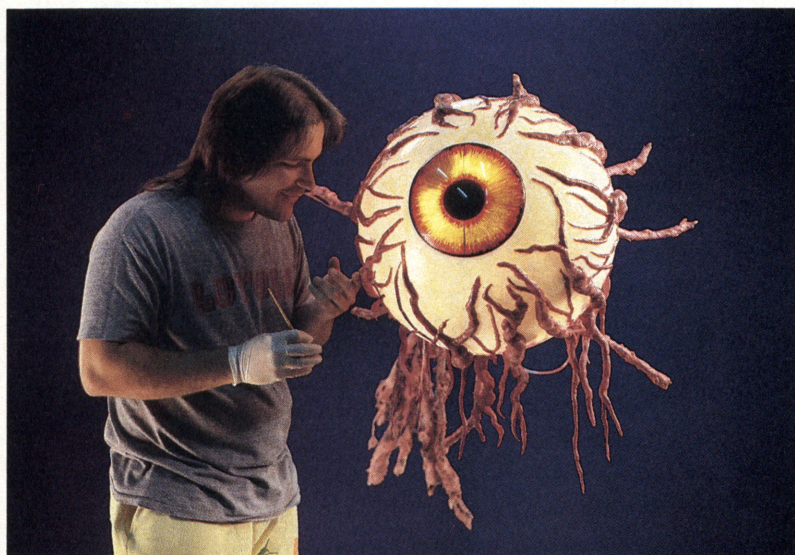
**Left:** The worm in early stages of construction.

fects shots of the film. "The ship arriving and leaving required quite a bit of work," says Dykstra. "We shot at some big exterior locations, getting live action and reactive lighting effects, which were synced with the action of the miniature ship. This way, the bright light from the ship appears to play onto the sand and surrounding actors. Animation provided the stars and the last portion of the flight. We combined four motion control passes from Hermosa Beach with six or





**Above:** Doug Smith programs a motion controlled shot of the eye on the stage at Apogee. The process being employed is "tempo blue" with blue light panels developed for Spaceballs. **Right:** Lazzerini puts the finishing touches on the eye.



seven pieces of film from the miniature shots and various animation elements."

Apogee shot the ship element using their licensed reverse blue phosphor process, which enables the crew to get a good, solid matte from a shiny object. In the normal blue screen process, a shiny object will reflect blue light. When the matte is pulled, this reflected blue light results in a hole in the object. One solution to this problem is to rotoscope garbage mattes,

but this process brings its own complications – more elements, which hardens the image, and difficulties in controlling contrast and color.

To solve these problems, the Apogee team came up with the reverse blue process, akin to a front light/backlight matte. The process, which eliminates the need for a matte finish, was first used on Clint Eastwood's *Firefox*. The subject is painted with its conventional beauty paint, with the color and detail it

will have in the normal white light environment. Then it is painted over with phosphor material, which is invisible in white light. When the ship is lit with black light, it glows – it becomes a light source itself. No detail is visible without white light. The glowing, black light piece is used to make the matte, and a conventional white light shot is then matted into the window matte generated from the glow. Another benefit of the process is that for continuous move stop motion photography, the background color can be altered to control the color of the matte smears.

The landing and launching of the spaceship weren't the only sequences that involved the combination of motion controlled live action, animation, and miniature elements. One establishing shot tilts down from a cloudy, lightning-streaked sky (animation) over a massive radio dish (miniature) to the exterior of Aykroyd's laboratory, where "employees" scurry around the wet-down parking lot, accented with lightning effects and wind machines (live action). The distinctive GTE building in Westlake provided the setting for this effective and foreboding shot.

"We used the VistaVision format for these shots, which enabled us to use Eastman 5295 negative," says Dykstra. "The 95 has a much greater emulsion speed, but is also a little bit less sharp in terms of grain quality. By using the larger negative area, we were able to match up with the live action footage quite well. The use of 95 with the larger format allowed us a smaller taking stop. The 95 was also used extensively in the live action portions of this film. Of course, its characteristics with regard to blue screen are quite good; that's the purpose of its design. One thing I will say, however, is that the 95 cannot be pushed to quite the extent that 5294 can. Kodak rates the two films at the same speed, and 94 can be successfully pushed to 600 ASA. If we rate 95 at much more than 300 or 320, the grain structure gets dif-



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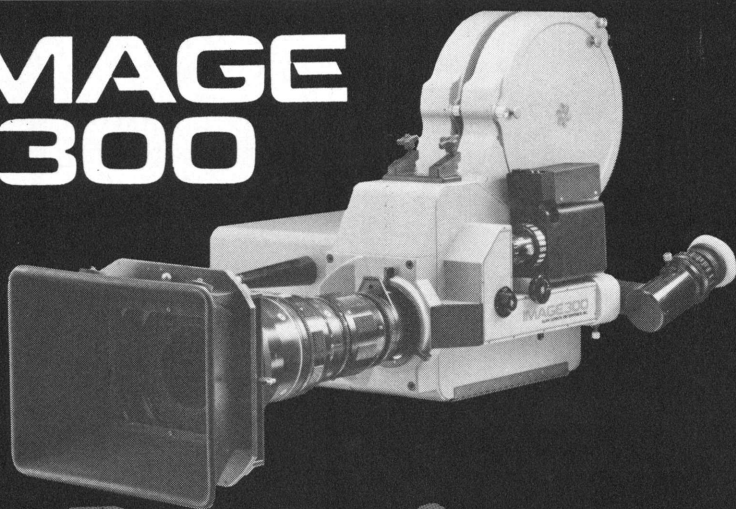
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difficult to work with in optical compositing.

"Another great aspect of 95 we've found is that by rating it at 200 instead of the rated 320 ASA, and pulling it in processing, we get a much finer grain structure, and yet retain all the same sensitometric characteristics of a normal exposure. In other words, it works very well when it's overexposed and underdeveloped. We used this technique extensively on *Stepmother*," says Dykstra.

*My Stepmother is an Alien* is scheduled for a early December release. With Dan Aykroyd as a bumbling scientist, Kim Basinger as a beautiful alien who feeds on battery acid, and the expert contributions of Apogee, the film seems destined for success. Achieved through the use of proven methods with subtle alterations, the effects will no doubt leave audiences amazed and impressed. Until next time, at least.  $\triangle$

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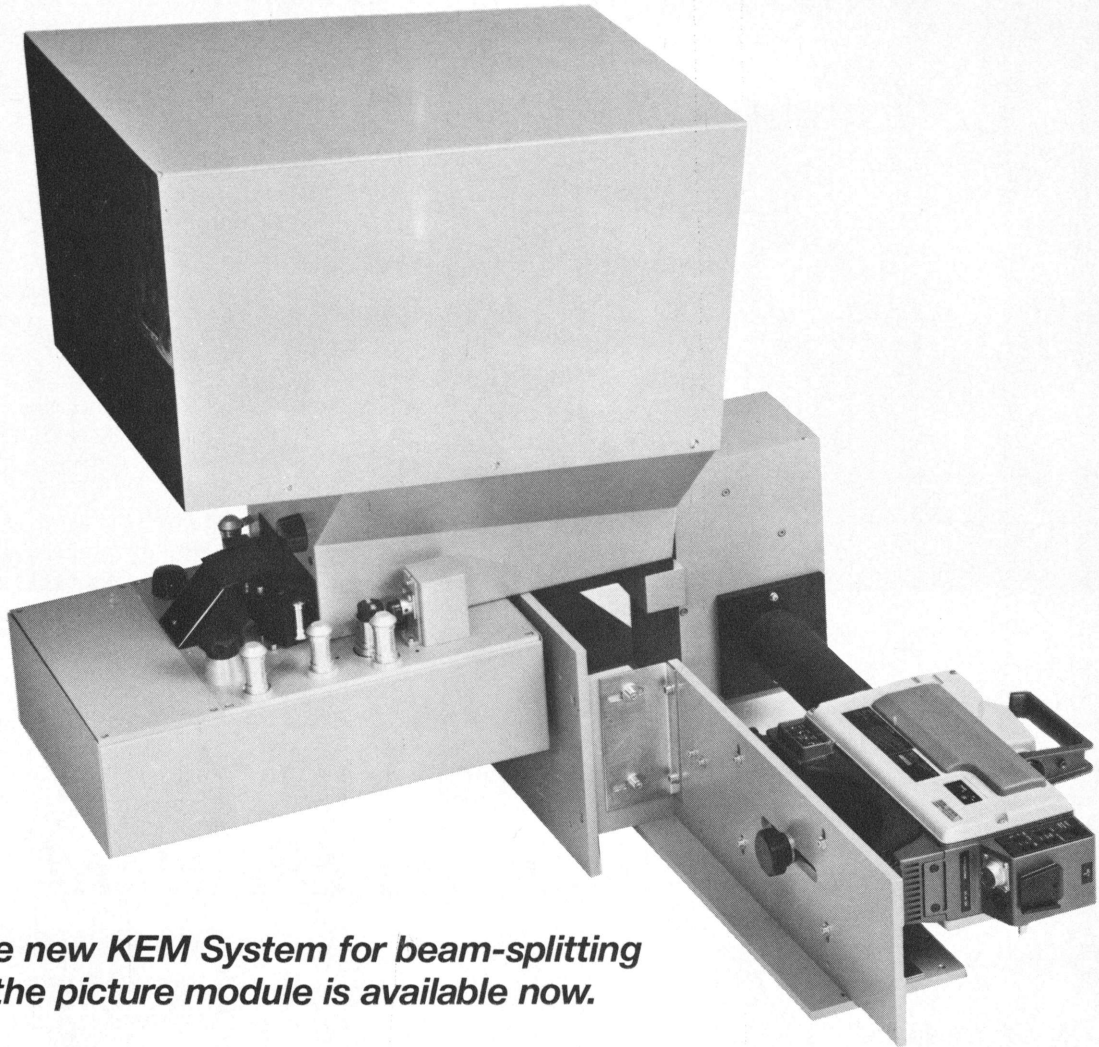
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## Sophisticated Visuals on Grand Scale for *Die Hard*

by George Turner

Richard Edlund, ASC, producer of visual effects, views the popular success of *Die Hard* with well-earned satisfaction.

A hard-hitting suspense melodrama about a lone policeman's battle to overcome a band of professional terrorists who have taken over a towering office building, the picture is not what we generally think of as a special effects oriented show. It takes place in modern, workaday Los Angeles and there are no aliens or monsters, no pseudo-scientific gimmicks, no flights into outer space or visits to long ago or far away worlds. The story, however fanciful, is ground-

ed in reality. Most of it was photographed at night in and around the new 34-story Fox Plaza Building, which towers over Century City, California, and on a spectacular interior set a few hundred yards away on Stage 15 at Twentieth Century Fox Studio. Two Musco Lights were used in illuminating the actual building and adjacent areas.

Much of the essential action of the story, however, could never have been translated into motion pictures without the utilization of highly sophisticated special visual effects conceived and executed on a grand scale. Edlund, who began his visual effects career at the

studio of Joseph Westheimer, ASC, made his name at Industrial Light and Magic in the likes of *Star Wars*, *China Syndrome*, *The Empire Strikes Back*, *Raiders of the Lost Ark*, *Poltergeist*, and *Return of the Jedi*. About four years ago he established Boss Film Effects, from which have emanated the effects for *Ghost Busters*, *Fright Night*, *Poltergeist II*, 2010, *Big Trouble in Little China*, *Masters of the Universe* and now *Die Hard*. In the course of these and other ventures he has amassed four Oscars, four nominations, three Academy Scientific and Technical Awards, and a head-full of know-how. His crew ranges from 60 to about 170 experts





Opposite page and left: The villainous Hans (Alan Rickman) meets his spectacular demise in this composited blue screen shot.

in the various arts and crafts that make up a complete effects team.

"We had to pull out all the tricks we've come across in our years of experience for *Die Hard*," Edlund remarked after the picture wrapped. "There are 35 or 40 effects shots involving about six months of focused involvement. It was fun working with John McTiernan, the director, and Joel Silver, the producer. For one thing, Joel requires an attitude of exaggerated reality, and he knows that to make an audience whoop and holler you really have to sock it to them. Even though the picture is very violent, it's stylized in such a way that I can appreciate it. The last person really capable of doing that was Sam Peckinpah, whose violence in *The Wild Bunch* was outrageous, but it was stylized in such a way that it was engaging.

"It takes a team effort to make any movie, and it certainly shows on this project. Joel has a group that has worked with him on several pictures and it's really important to have that kind of team. I have that same luxury here – to have fabulous people who have worked together for a long time and really know how to think on their feet and can come up with an answer right now when it's necessary. We try to make the movie the best way we can, so I don't try to steer the director into making everything into another shot for us –

there'll always be plenty of work for us. Al DiSarro, who was the production effects man, did a number of the shots that have big explosions on the building, such as the long shot where you look across the city and see a big explosion on top of the building. He did that – safely – and they just shot it. But you can't blow the top off of a real building, so when that happens those are our shots." Brent Boates, Boss visual effects art director, worked with McTiernan to design these shots.

The scenes in which the top of the building is blown up, which also involves helicopters, one of which first attacks the building and then is destroyed in the explosion, demanded some unusual techniques. Many of these involved miniature settings and models, which were built in house under the supervision of Mark Stetson, of *Bladerunner*, 2010, and *Ghostbusters* fame. Edlund described the complexities of the work:

"We could fly the helicopter down the main streets of Century City and then make a right turn, but we weren't allowed to get within 200 feet of the building. The scenes inside the chopper were all blue screen shots that we did at Boss, then we did the background plates from the helicopter. Our director of special effects photography, Bill Neil, made the helicopter shots with the 65mm camera hand-

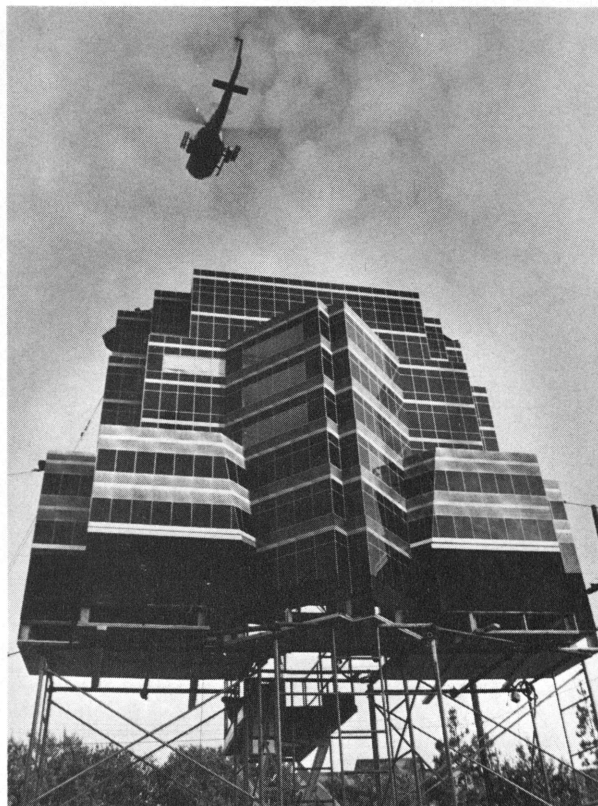
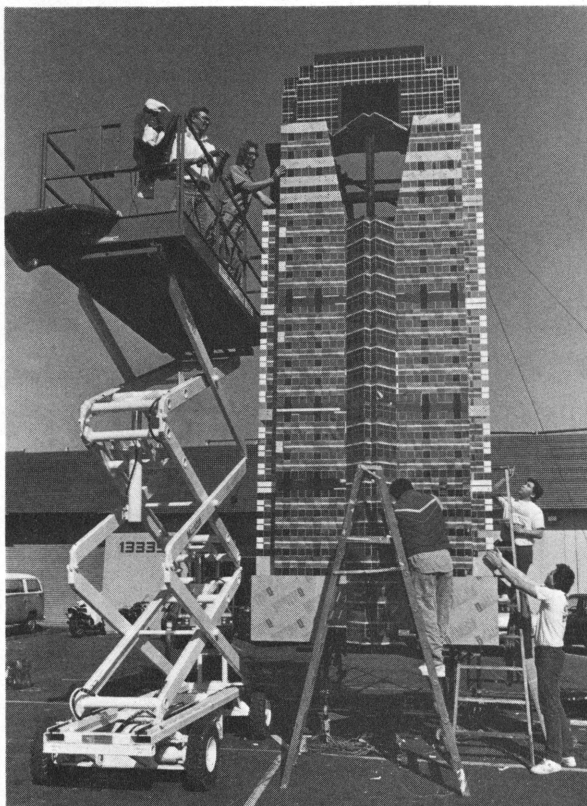
held on a Tyler mount. He cheated by using a longer lens to bring what's outside the windows in closer. We had a nose mount underneath the chopper for certain approach shots. Because of a logistical problem; we missed getting one particular plate which was crucial, so we had to use another plate and do a reverse action and flop it to make it work for that one shot.

"There was one shot, where we were looking at the top of the building when the explosion went off just before we cut to a shot of the helicopter coming toward us, which was actually a 35mm shot from production. There was no explosion on the roof, however, so we had to add it in – that was an afterthought. One helicopter was fairly high above the building, and the other copter was in front of the building with the whole of Century City and Los Angeles in the background. We had to roto scope the helicopter in front of the explosion. Also, there was a camera move in the shot, and that identical move had to be in the explosion as well, so it was a tough one to shoot."

The miniature explosion work was by Thaine Morris, named by Edlund as "the best – I've worked with him since *The Empire Strikes Back*. He knows how to make the explosions look right as to color and speed, how to slow them down properly for scale. We had to do a little bit of printer correction to



Right: Boss technicians Alan Faucher, Dana Yuricich (on lift), Tom Griep and Pat McClung (lower right, in white shirts) working on the 25-foot miniature replica of Century City's Fox Plaza. Far right: Radio controlled miniature helicopter flies over the top floor of the model. Below: Ron Gress puts the finishing touches on the chopper.



Photos by Virgil Mirano



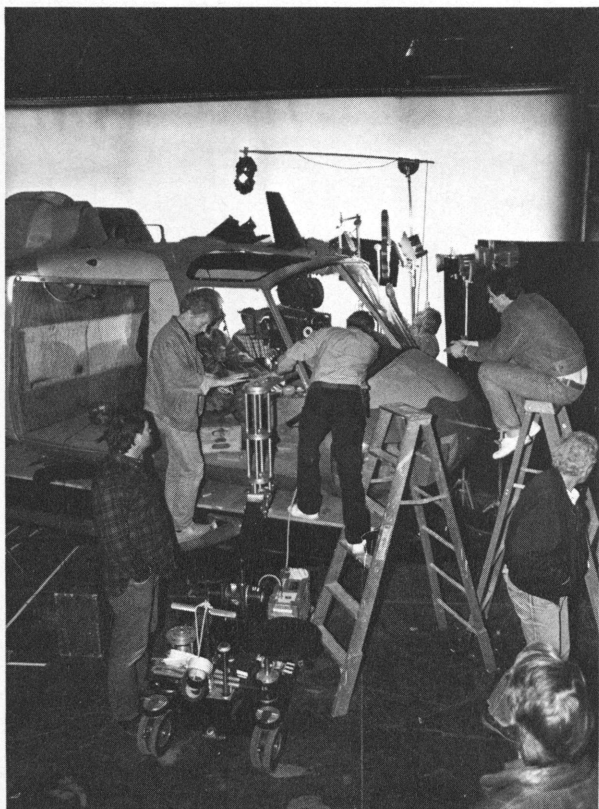
get the explosion to match, then do rotoscope mattes from that and then composite it. Then the flame had to engulf the helicopter, so there was another sub-rotoscope where there had to be a ball of fire placed just right within a bigger ball of fire. Only Thaine could do those in miniature, position them and know which part will be bigger than the other. That's pretty esoteric, like trying to control wild stallions."

The best of these shots, Edlund feels, brought him a phone call from producer Silver: "That shot is totally legitimate! It's one of the best you guys ever did." Edlund described the scene: "You're looking up at the top of the building, where there's a huge fireball. The helicopter comes spinning out of the fireball, falling towards camera. The fireball then has another sub-explosion going on within it as the helicopter continues

falling. Then the helicopter blows up on its own. It was all done in the camera with no added effects; Thane and Bill did it all. The building was a miniature. The helicopter – quite an expensive unit – was radio controlled. We had three shots at this, at \$3,000 to \$4,000 per helicopter; they got it on the second one and it was magnificent. Everybody was out there watching and there was no question in anybody's mind at that point. We shot a videotape of it in real time; it falls over, bam, and it looks funny on film. It was shot at about 240 fps, not at top speed – we eased back after doing some tests to check the speed. It was a difficult and relatively expensive shot to set up, but not prohibitive."

At Boss, almost all effects are shot in 65mm, which offers a large image area with which to work. In this way it is possible to produce composites of such high quality that when reduction dupes to 35mm are made, the effects shots don't suffer when intercut with 35mm production footage. As Edlund explained, "Anytime you're creating visual effects you



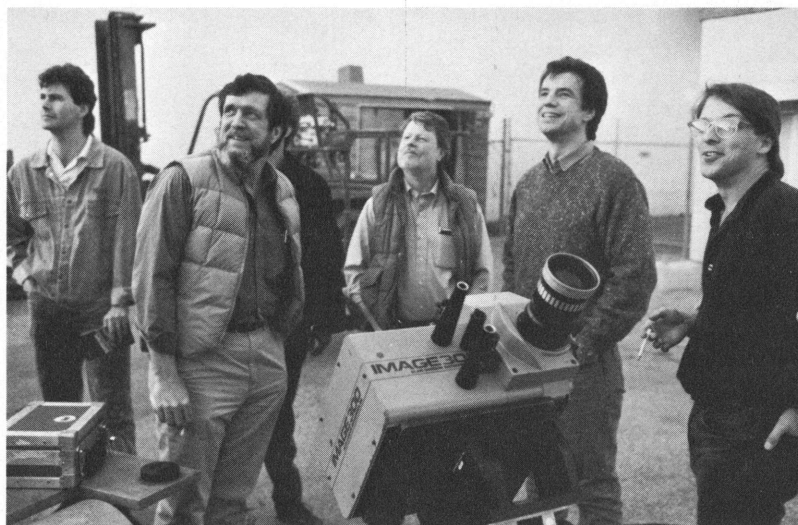


Far left: The crew prepares a larger version of the helicopter for cockpit closeups. Left: On the stage at Fox, moments before the villain plunges 20 feet into a blue backing. The scene was shot 35mm anamorphic at 300 fps. Below: A pleased crew surrounds the versatile Image 300 camera, used for many of the high speed shots in *Die Hard*. From left to right, Stetson, Edlund, Neil, McTiernan, and Boates.

want to begin with the biggest possible negative because you're going to amplify image problems with each succeeding generation."

*Die Hard* was photographed with anamorphic lenses, which has been known to create problems in visual effects production. Edlund, however, expressed a liking for working in anamorphic format. "I think it's a much more dynamic aspect ratio. It's more 'big movie'-like, the way God wanted pictures to be made, and it uses all the 35mm negative. With 1:85 you're throwing away much of the negative, although with spherical lenses you end up with a better depth of field. A lot of people confuse depth of field with sharpness. Anamorphic is more difficult to compose for, but there are a lot of cinematographers who know how to use it, and it does provide some problems for us, but we've learned to deal with them.

"Actually, it makes our material look better; look at the quality in *Die Hard*. Jan DeBont is a great cameraman and he was able to produce a really lush, rich look even though it's high-speed, low-



light photography. He shot the entire picture on Eastman 5295. Our effects shots cut in seamlessly and you don't see any dupe quality. Oftentimes when you dupe in 35mm you get a scene that looks dupe and it doesn't cut in right with the rest of the scenes. In *Die Hard* there are eight or nine shots that were done as 35mm composites. What we do sometimes to avoid that dupe look in 35mm, especially for titles, is to use two inter-

positives. That's a technique we tried first on *E. T.* when I was at ILM - we used two interpositives at 50/50 exposure. I've always disliked using CRI - color reverse internegative - "because it has a sort of swimmy grain look. The last dupe I remember that was really hideous in that way was *Kramer vs. Kramer*, which was beautifully photographed by Gordon Willis, but the grain in the release dupe was like golf balls. A lot of times I see



Overcranked effects shot featuring double explosion, shot live action with the miniature building and radio controlled helicopter.



movies in the answer print stage and sometimes it's quite a comedown later to see that 35mm release print look."

Some of the most suspenseful moments in *Die Hard* involve vertiginous sequences in an elevator shaft. Most of these were produced as visual effects shots for several reasons.

"Just looking down the elevator shaft provided an incredible lighting problem, and beyond that elevators are controlled by codes and you certainly can't explode anything in a real elevator shaft," Edlund reminded. "The fact is that a lot of damage had to be done to the building in the course of the story, but none of it could *actually* be done to the building. We were called upon to do all of that. The elevator shaft we wound up building was a forced perspective miniature about 20 feet high. It was built like a funnel, so that it was narrow at the bottom and wide at the top. It provided a good way to avoid having to build a 40-foot tall tube in order to shoot the elevator in miniature.

"This also provided some problems for Morris, our pyro master, because the explosion in the shaft has to start small and get larger until it fills the frame. The explosion had to be shot separately. First we shot a plate of the forced perspective miniature with the lights on; then, without moving the cam-

era, we turned off all the lights and shot the explosion in the tunnel as a separate piece. Actually, we shot a couple of different explosions, then had to composite them together in order to get the final push that knocks Bruce out and kicks out the windows – which is a climactic point in the movie. What we wound up with is a composited piece with Bruce in the foreground shot against a blue screen as he scrambles out of the way, and the two explosions matted into the tunnel. It was a lot more complicated than it appears to be, which is sometimes the case in effects work. I think it is really Thaine who deserves the big hand for this, because he was able to create explosions in miniature in a fairly small size that look really big and amazing." Neil shot this sequence by ramping down the camera speed in order to enhance the speed of the oncoming disastrous fireball.

Another audience grabber is a sequence in which Willis tries to climb down to a ventilation shaft which opens into the elevator shaft. He falls and, unable to grasp hold of the vent he was attempting to reach, plunges toward certain death. He saves himself by hanging onto a shaft farther down. "Most of that was done live," Edlund recalled. "Neil, Boates and I were advising John in ways that we felt would give him the kind of verve the shot needed by using a forced

perspective painting or actually building forced perspective sets. I think if we had done it as a miniature it would have carried more depth and might have looked more precarious, but the way Bruce played the scene and the way John directed him, I think, pretty much got the max from it. It was really a gut-wrenching sequence."

Yet another scene guaranteed to induce acrophobia begins as a close-up aiming down at the principal villain, played by Alan Rickman, who is clinging to the edge of the skyscraper roof and trying to aim his gun at Willis. Then he loses his grasp and falls away from the camera, into a terrifying void backgrounded by the street action hundreds of feet below. Slow motion photography stretches the suspense of the moment to the limit. It is reminiscent of the celebrated scene made by John Fulton, ASC, for the Alfred Hitchcock picture *Saboteur*, in which Norman Lloyd falls from the torch of the Statue of Liberty.

"Our villain actually fell about 20 feet into a huge blue backing on a stage at Fox," Edlund revealed. "It was a pretty large setup with a lot of nine-lights illuminating the backing. Bill used a follow-focus device which lets you pan a video camera on the actor and keep him lined up in the crosshairs, and it is calibrated to the focus mechanism in the taking lens. Rickman





Composite of the complicated "aftermath shot," which follows the climactic explosion.

was falling away from the camera, and, of course, it all happens in a few seconds, but shooting at 300 fps lengthens that by a factor of 12. He did it five times, too. We were able to use the shot only until he fell into the path of the lights illuminating the blue screen. McTiernan loved the shot and was pleading, 'Can't we get just a few more frames?' The action was shot in 35mm anamorphic and then composited optically against a 65mm background."

Boss Film uses Eastman 5247 and 5295 for blue screen. "We love both – 47 is a magnificent film and 95 is tops for our work," Edlund said. "We've gotten away from 5294 – although it can look very good – because we find that we like 95 better. Unfortunately, this leaves us with quite a bit of 65mm 94 in the freezer."

Stetson's model crew at Boss made three models of the Fox Plaza, ranging up to one about 25 feet high. These substituted for the actual building for several key sequences and, in one instance, the larger model was combined with the real structure by a complex process.

"There's always one shot in any movie that is hard to get just right," Edlund said. "It turns out to be the most difficult one, but you never know which one it will be. Sometimes it's a shot that seems simple, and there'll be some partic-

ular trouble with it. We *thought* it was going to be the aftermath shot, in which we tilt down from the top of the building, which is on fire and spewing an enormous cloud of fire and smoke into the air, down to the incredible chaotic mess at the bottom of the building, with firetrucks, the cops, the FBI, and smouldering helicopter remains. All this plus thousands of reams of paper that were floating down out of the sky like snow. Certain parts of that – some of the falling paper and the action on the ground, for example – were done live. DiSarro had guys at about the 10th floor of the building throwing off paper, but they proved to be a problem visually because it was so sourcey; you could see that the paper was coming from one area on both sides of the building. On the other hand, when we were down low, at the end of the shot, we needed the paper those guys were throwing, so we shot that from a Titan crane. It was not done with electronic motion control equipment but was a simple tilt-down with an O'Connor head, travelling from the top to the grounds with all the people milling around, then we boomed out around some trees and really gave the audience a good look at the mess.

"The beginning of the scene – the burning top of the building – was a miniature, and then we had to match that tilt-down, which was shot wild, and then go

into the boom shot. It's the kind of shot that makes you say, 'Oh, God, are we sticking our necks out too far?' One of the difficult things to line up is patterns; if you have objects that are broken up or organic shapes, it becomes fairly simple. But if there are patterns, it has to be absolutely right or you start seeing a disparity, and if the pattern shifts during a dissolve, then you've given yourself away. In this case there was a point where we could dissolve off the building and get away with it because it was darker, but there was a problem in that there were various lights on in the building, so the lights had to be dissolved on. We came up with a whole series of 'sleight of eye' techniques involving the falling paper. Initially, we were going to use paper falling to cover up the transition, but it turned out that the lineup was so good on the shot that we didn't need to do that."

Edlund used the evolution of the sequence to illustrate one of the facts of life for effects men. "Oftentimes you start off with a concept and when you get into any given shot it takes on a life of its own and dictates what you must do to fix it. It's one of the challenges I find most interesting in effects work. You start off with a good idea and try to control everything, but somewhere along the line you have to shift gears because of circumstances unforeseen. You have to be



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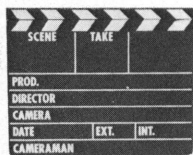


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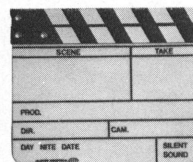
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able to think quickly, so that you don't shoot something that you can't fix later. You're really putting yourself on the line on the set. The pressure is very high when you're shooting background scenes and plates, because a night shoot with a full crew costs maybe \$75,000 or more, and you're taking up two hours of that night to do that shot, trying to coordinate all these people with walkie talkies and bullhorns. The only way to do that is to have a really good crew that knows how to run with the ball.

"That was an interesting shot and a complicated one which certainly wasn't like falling off a log, but it wasn't the most complicated or difficult shot," Edlund averred. "The shot that turned out to be the toughest was the one that came in last — the third floor explosion. That happens right after Bruce gets kicked out of the way by the explosion that came up the elevator shaft and it blows out the whole front of the building. Cut to a shot of the building, with a smoldering armored car down at the lower left, and — BOOM! — all of a sudden the front of the building blows up."

Originally, Neil had photographed a test explosion before making several additional takes, always with the knowledge that a matte would have to be extracted from the explosion to be printed into the relatively bright pattern of the actual building.

"The explosion that McTiernan picked was the first one we did and, because it was meant only as a test, the lineup wasn't quite right," Edlund recalled. "He said, 'I like that explosion; can't you use that?' I said 'okay,' because even though it was a little crooked, it actually was the most dynamic shot. But it had a big dark spot of smoke in one part of it, which meant that we couldn't get a matte from it. When we got it into opticals there was no way of pulling a matte out of it, and you can't really rotoscope explosions — it just doesn't work. We had a big transparent spot right in the middle of the shot, and your eye goes right to that —

you say, 'Why is that transparent' instead of being knocked back in your seat, which was what this shot had to do. Joel was relentless: 'It's got to be great!'

"Dennis Michelson, our visual effects editor, picked out frames for us. Editorial is really pivotal in this field in terms of getting all the different elements to work and being able to pull out little tricks at the last minute. He had to find frames of explosion that could be flopped or manipulated in order to get them into the right position to composite together with the first explosion. Because this was shot in 35mm anamorphic, we didn't have a lot of repositioning capability. Then it went in to Al Cox, the optical supervisor of this show, whose nickname is "Diehard" because there was so much difficulty in getting all the scenes to look real, getting the matches perfect, doing focus changes on miniatures in the background, and working with focus changes that were done on the plate. Also, there was a lot of tricky things that were sort of thrown away as part of the shots, but these are the kind of things that can be done with a live camera and if you don't do that with the effects shots the audience starts being suspicious, even subliminally.

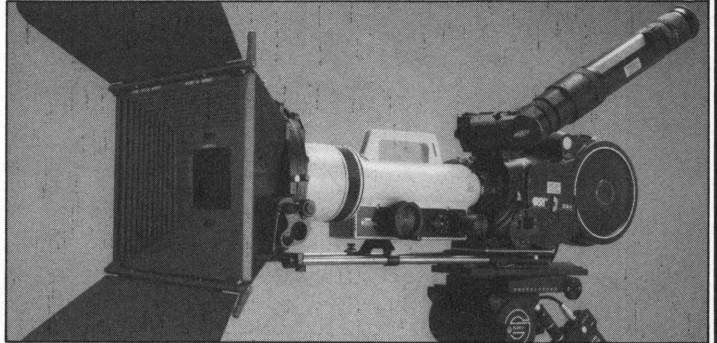
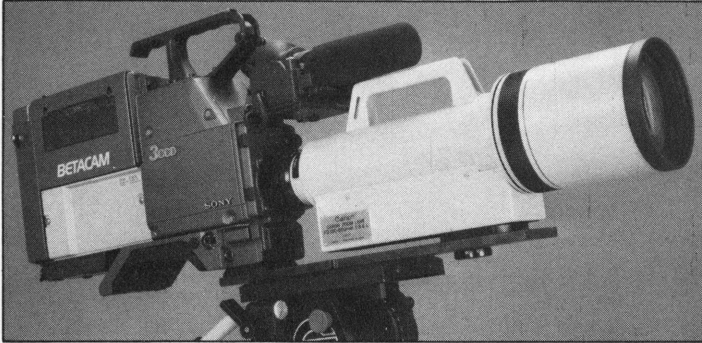
"The director wasn't going to let us or the audience get away with that, so he pushed us to the limit in getting all these little tricks out of us," Edlund grinned. "He came up with a number of demands, but they were demands of a creative nature and we appreciated that. In any case, Al was able to put the incredibly complicated matte together in stages from all these 'grab a frame here — match it to this shot over there' elements, and it would have looked terrible if we hadn't done those six or seven frames of fix.

"So, that was the last shot. It was redone and redone and redone. It took eight or maybe nine takes to get it right. We got that transparent spot out by taking frames from different takes and finding those frames that would work and putting them in, but the



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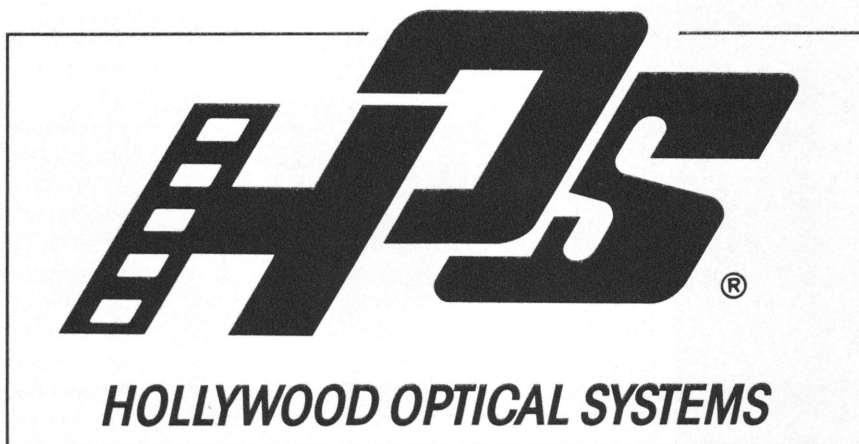


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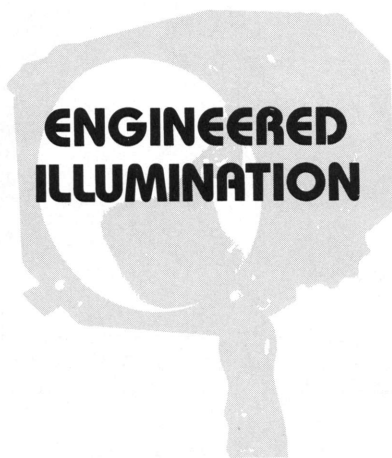
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main thing was to make the matte and then put in all those frames. Many had to be repositioned, so we'd have to remember that on this particular frame your matte was made  $115/1000$ ths to the left, and that means that when we'd burn that frame in later it would be necessary to move it  $115/1000$ ths to the left so that it lined up with the matte."

Much of the credit for such complex opticals belongs to the ZAP (Zoom Aerial Image Optical Printer) which brought Boss an Academy Science-Technical Class Two Award in 1987. It was built originally for *Poltergeist II*.

"ZAP gives us the ability to do things that give us the edge in making a movie like *Die Hard*," Edlund said. "To some extent the essence of a good optical printer is reliability and repeatability. If the operator - the camera artist, actually - who is compositing shots makes a fit and saves those numbers in the computer, and goes back later on and can't trust those numbers, then he's limited as to what he can do. Then he doesn't make that move and you end up living with something that's less than as good as it can be. If he can really trust the machine, knows that it's stable and sharp and that it's going to do the same thing each time, he has the same facility that he'd have with a pencil when making a sketch.

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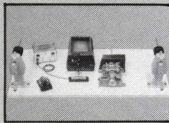
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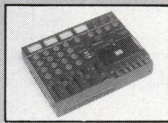
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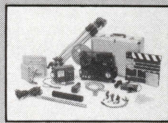
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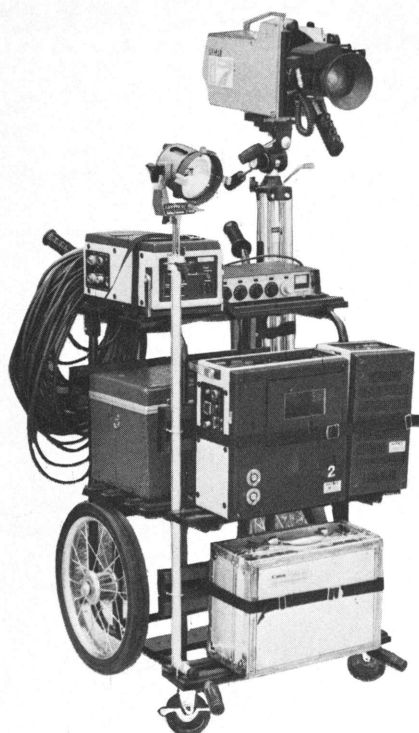
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the scene in question was a very  
quick shot, only about 35 frames  
long. Yet, it had to be perfect, ac-  
cording to Edlund, because a mod-  
ern audience comprehends the  
contents of a scene much faster  
than viewers in the past. "The audi-  
ences nowadays picks things up in  
two frames. When I first started  
studying film there was a book by  
Raymond Spottiswoode called  
"The Grammar of the Film," and it  
was my bible. I found it in the base  
library in Japan – the only book on  
film there. He had done a graph on  
how long it takes an audience to  
recognize a new shot; he said it was  
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## Cocoon II, the Return Challenges Wizards

by Lynn Carpenter

Sequels have become a Hollywood cliché. Most any film with a modicum of success is a candidate for a sequel. Film number two rarely does as well as film number one. There is, however, a list of notable exceptions and interestingly, they do have at least one common element – special effects by Industrial Light and Magic. The list includes the *Star Wars* trilogy, the *Indiana Jones* saga, and part of the *Star Trek* phenomena. ILM hopes to add *Cocoon II* to that list. Only time will tell.

It's never easy to play one-upsmanship games with yourself and yet by now ILM is a grandmaster. In 1984–85 they produced the visual effects for *Cocoon I* under the direction of Ron Howard, produced

by Lili and Richard Zanuck. This time Daniel Petrie directed and once again the Zanucks were producers. Scott Farrar was on the plate and blue screen camera crew for the first outing. This time Farrar was the visual effects supervisor.

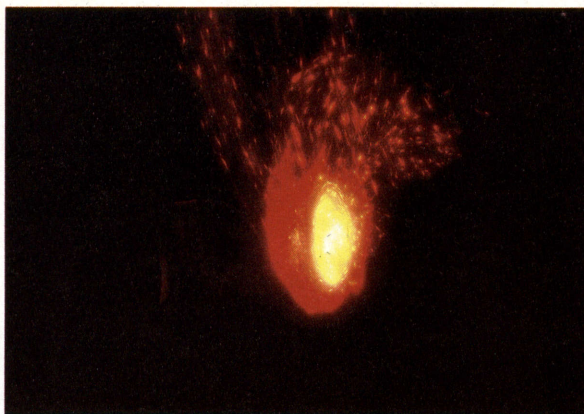
"We started with 49 shots and a very tough schedule and it went to 88 shots with the same, slightly shorter schedule. That's always the biggest concern – to get the shots done and done well, before the time runs out. Everyone – producers, directors, everyone – is under the gun to produce more for less these days," said Farrar in an interview a week before wrap.

Unlike the first *Cocoon* which had "just about every kind of effect," the new film depends

mainly on animation, bluescreen and opticals. The main "effect" in the film is the alien character Phil. Farrar explains, "Phil is involved in about 15 key shots. He looks very similar to the aliens in the first film only he undergoes changes because he is captured and held in a scientific laboratory so he can be studied. As the story progresses he loses his energy and seems to be dying."

The challenges with Phil fell into several categories. The blue-screened part of Phil included a series of flying-rig shots of an actress in a white body suit and latex mask. The optical version of Phil includes that element and more. Phil is made of vapors of various colors and intensities. Cre-





Opposite: Love-making alien style! Animated fireball chases Guttenberg through a restaurant. Above left: Background plate as shot on stage. Above right: Animated element before compositing.

ating and controlling the colors and the sizes of the vapors and making sure that the character really fit into the scene occupied most of the *Cocoon* crew for an eight month period.

The general approach to the alien was very similar to the techniques used in the original film. In fact, Ralph Gordon, the original optical supervisor on the show, talked extensively to Dave Berry, who supervised opticals on *Cocoon I* before deciding just how to create the alien look. (Editor's Note: Ralph Gordon died of a heart attack in August. His presence at ILM and in the field of special effects is greatly missed.)

According to Bruce Vecchito, who replaced Gordon as optical supervisor, "We had an advantage Dave didn't. We had a new MC camera [Mechanical Concepts camera with Tondreau software] to use and we needed it. Since the aliens move around so much it makes it more difficult to create the glow and vapor effect."

Vecchito explained the optical steps in creating the aliens and why the new camera was so important: "First we made the high-con window matte of the alien - a clear center and a black background. We would take that and fill that clear void with a water ripple effect. We used a colored ripple that gave the alien an outward motion. This is all done on two-color negative stock, so we have to send it to the lab each time. Once it comes back, we manipulate it with our printer. We use a technique where we slip the sync one frame on each pass and the cameraman

does 24 passes per frame. At the same time, on each pass the image is enlarged. So, on a single frame you have 24 passes and 24 size changes. The outer ripples are also put out of focus so the image feathers out. Zooming on the image combined with the sync change gives you a nice outward movement which is the basis of the vapors.

"Then, to break it up even more, we take it another step. We re-photograph that piece of film with fire in it. This gives it an orange color and it also breaks the image up into a more random pattern. Then we go to our final compositing stage. We have about 35 of these shots and that's a lot of optical work to do on a show - especially with all the lab turnarounds we had. We use Monaco Labs here in San Francisco.

"The aliens in the previous movie were pretty bright and in most of the scenes in *Cocoon I* they were in a darker setting so they could light up the room and add something to the scene that way. It's a little harder putting the alien into brighter backgrounds such as the lab. The yellow vapors that come off him don't show up as well. We have to use thin mattes to put the vapor in and then we have to be very careful to hide the mattes that we are using for the vapors."

Vecchito continues, "The other problem with the alien is that we were working with organic images and depending on how the alien is moving, those images change the kind of look we get. It was often a serendipitous image that we ended up with. We generally knew what they would look

like, but there were some surprises. With the time crunch we were under, we had to live with them. Personally, I think most of them were good surprises."

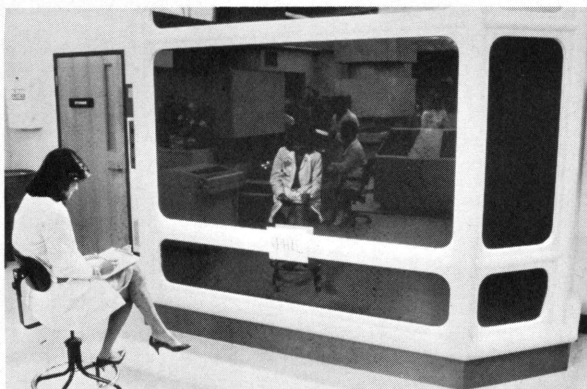
The improved technology helped control serendipity in some instances. Says Vecchito, "When we are putting the water ripple into the clear center of the negative space of the alien, we need to track that center ripple and keep it on the chest area of the alien. Otherwise he is slipping through the water ripple and it doesn't give us the effect we need. We needed a camera that would be able to track the center of the ripple for us. We have that now with our MC. John Alexander is the cameraman on that camera and he did a massive amount of work."

For Farrar the improvements were artistic and technical. "This time the choreography, if you will, of the aliens and the vapors that come off the aliens are much better and much more complex than what we were able to do in the first show."

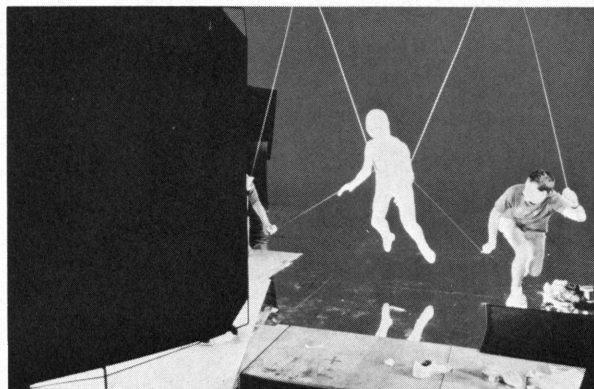
One good example is the increased movement of the aliens. They move *through* scenes as well as toward and away from camera. Farrar continues his explanation, "The movement is done primarily through wire work, but it is a little more sophisticated in that we have been able to integrate the aliens into the scene. We didn't have to keep them relatively stationary as we did in the first film. As I said, they move right past camera as they fly into a scene and they go through doors and turn left and turn right. . . all of it choreographed while the



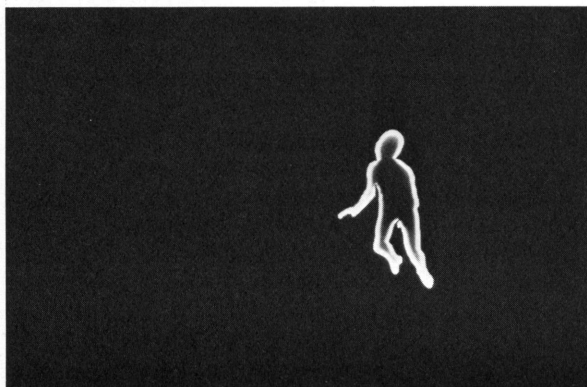
1. Live action background for scene of Phil in observation tank. 2. Flying rig and blue screen set-up for photographing live action alien. 3. The "Tron glow" was added in opticals. 4. The final composite.



1.



2.



3.



4.

actors and actresses are suspended from wires in front of a blue screen."

The non-flying scenes were not necessarily blue screen. In shots where the alien must interact with other characters or just lay on his cot, ILM merely added the glow factor.

Once the technique for the alien look was well established, the ILM team turned attention to other problems, and in the process a startling new precedent was set. Farrar explains: "Originally, because of time restrictions on Brian Dennehy, his character could not be written into the script. The producers were continually being asked if Dennehy would be in the film and they had to say no. But the Zanucks continued to think about it and they knew that it would be appealing to have him in the film. So finally they said to me, 'How can we fit him in?' Or more specifically, 'Can we shoot him blue screen and put him in this film even though he can't be there for the original photography in Florida?' We talked about it – and believe it or not – that's what we did.

"Through a complicated series of photographic set-ups when he appears on the Manta at the end of the film and speaks to everyone, he is blue-screened into everyone of those shots. He was photographed after the fact in Los Angeles as the other players we photographed on the boat in Florida were reacting to someone who wasn't there. It's a nasty precedent to have set – now the actors don't necessarily have to show up to be in the movie," sighed Farrar.

The blue screen technique is normally used to insert a group of people into a miniature set or maybe a painting. Of course, it is also used to fly spaceships through the black depths of the universe or the blue skies of Los Angeles. Rarely, if ever, has it been used to insert an actor in among other actors. To accomplish this bit of sleight-of-hand required precise pre-planning.

"Dan Petrie, the director, and I had to sit and down and go over and over the sequence," Farrar recalled. "We had a storyboard artist draw the sequence exactly as it would be done – shot for shot –

including over whose shoulder we'd be shooting, what wide angle we'd use here, who should make a turn or move here so we could cut to the next shot. Once it was mapped we couldn't forget anything when we shot Brian. We had no choices once we left Florida."

Farrar also reported the use of a second new camera. "We shot the blue screen with sync sound. We blimped our VistaFlex camera – we call it our stage camera because it is capable of shooting normal stage sync sound photography just like a Panavision camera, only it is shooting on VistaVision film. This camera was developed for *Roger Rabbit*."

"In the end when Dennehy arrives, he comes in a light form – a comet with a tail behind that comes down to the boat," said Farrar. "Then he transforms into the Brian that we are all used to. A little later a lot of the people on the boat reverse that process and change into comets that ascend to the mothership. There's one shot where the people start to glow and change and all the cocoons glow and pop to comets and everyone



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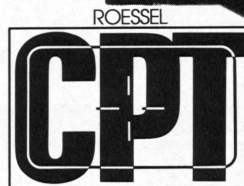
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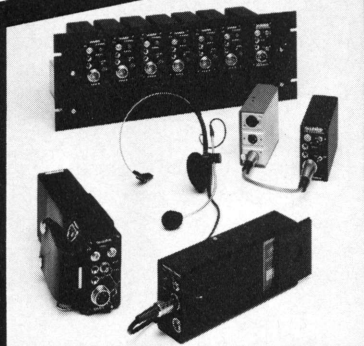


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starts to go up. In this one shot there are between 60 and 70 elements. Most of them are done with animation.

"We used old elements from the first show for the mothership because it appeared so infrequently in the original," Farrar admitted. "We only made one new miniature and that was for a shot where the doors of the mothership open. We re-photographed the old elements, changed the sync of the lights and ran the film backwards. It worked fine for this show.

"This sequence is one of the reasons the show ended up being a very heavy workload for the animation department. We needed a lot of articulate mattes for all of the alien shots to remove the wire rigs, we had to have glows that just fit on the aliens and didn't spread to other people or to blankets and bedsheets or whatever, and in that last scene we had to turn 13 people into comets," says Farrar.

For each person that turns into a comet in the last sequence there are three or four optical elements. Explains Farrar, "First there is an innercore – a little crystalline piece, then there is an outer glow and then a flicker element. That doesn't include everything that was produced by the animation camera department. Pat Myers, our animation cameraman, did a great deal of work. Bruce Walters was also doing a lot of the shooting and programming for the ascending comets. That is one place where you do need computers to help out. We can produce programs that are coordinated with one another and yet have a certain elegance. Wes Takahashi is the head of animation. He and Tom Brutino – who is the head of the rotoscope animators – they have to come back in and retouch all the things that are produced by either blue screen photography or the animation artists."

Full articulate mattes are produced by the animation department by hand. This is one process that can't be helped much with a computer. There is so much finessing that must be done on a frame-by-frame basis that even if it could be done by machine, it would still have to be refined by hand.

"There are 26 shots in the end of the film alone – plus we took four-perf shots – four-perf means regular Panavision live-action shots that weren't originally intended to be effects shots – and we added ripples and stars to replace the jet black behind the Manta and the mothership. Once again the stars and the ripples are all produced in animation."

The end sequence was more straightforward for the optical department than it was for the blue screen team. Vecchito explains, "For us it was a traditional blue screen technique – we might have finessed our mattes more than usual to try to get them to look the best possible in the scene. Dennehy was shot very well to match the background plate. There is one scene that really fools you. Brian is in the foreground and Tahnee Welch is in the background. The cut works so that she walks to his right from behind and off frame. He glances over – like he saw something out of the corner of his eye – and reacts. That little bit of acting and editing really makes the scene fit together. Other than that, it was just careful production planning to have all the perspectives right when Brian was shot. We use blue screen quite a bit around here, but putting Brian in with other characters is a little bit unique."

The challenges for the optical department were slightly different and Vecchito, whom Farrar praised highly for his ability to step into Gordon's shoes, had his own ideas about "outstanding shots." "My favorite shot in the film is of Phil when the scientists first open the cocoon. They bring it to the lab and determine that there is something in it and start to cut it open. We cut from a wide-shot high-angle looking at the cocoon being opened to a close-up of the open cocoon.

"The original background plate had a lot of smoke in it and the alien was brightly lit inside the cocoon. The inside of the cocoon was bright white. The rest of the background was out of focus and dark. Not black, but dark.

"At first the idea was to use the plate as it was. We thought the alien was hot enough, but then



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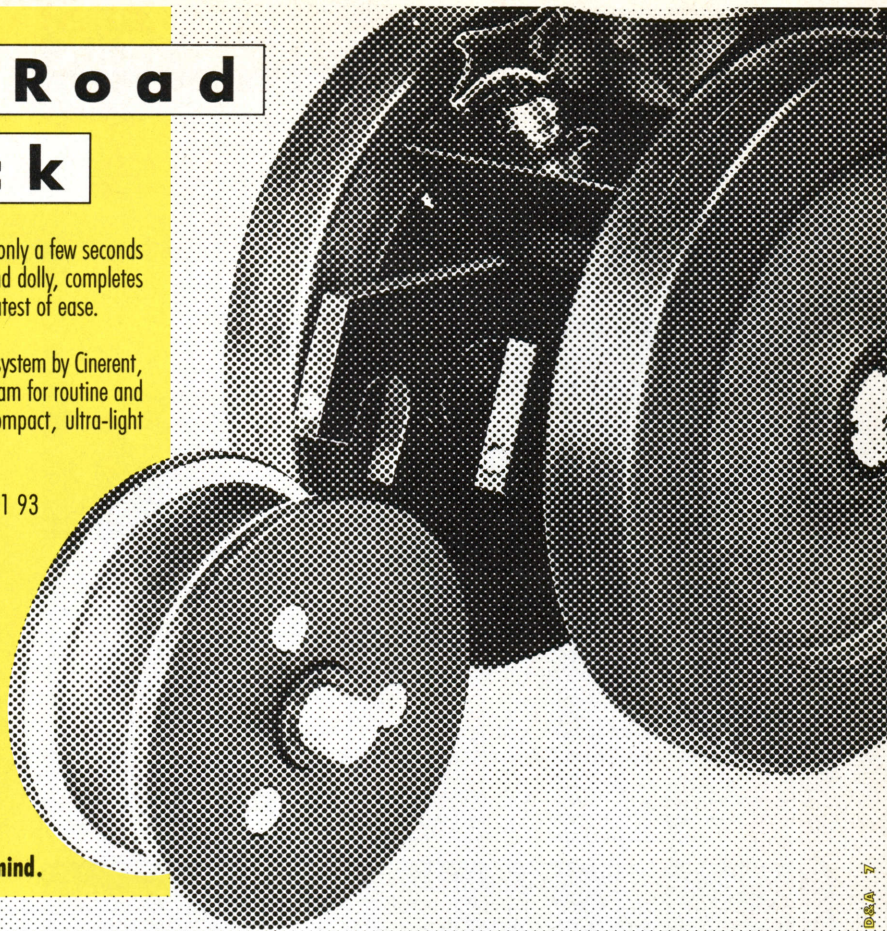
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looking at the previous shots and all the surrounding effects with the alien, we knew that we had to make this a really special shot. This is an intimate, close-up look at the alien, and when they open that cocoon it should have good impact. This opening shot was something like 350 frames. It was so long that we didn't want to have the edge roto-scoped. A hand drawn pencil line around the alien wouldn't work, it would make an 'edgie' line – so we set about to pull a matte off the alien. It actually came off pretty easily. After we got a matte off the alien we were able to do our three vapor steps and create the alien look for that opening shot.

"I wasn't quite sure how the smoke in the plate was going to work for us, but it worked in our favor as a kind of built-in revelation of the alien. When we pulled off the mattes, the smoke helped dissolve in the alien. Also, I think the shot itself is very pretty. The woman who played the alien had these exceptionally blue contacts on and for somebody with no hair and a latex costume, it looks pretty, somehow. We did have to tone down the blue in her eyes. They were too blue, so we had to control the exposure and the amount of blue so they didn't just pop out of her head," Vecchito revealed.

There is one other sequence in the film that Farrar and Vecchito and their departments labored over intensely – the fireball sequence. Aficionados of the first film will remember that the Antareans make love in a very different manner from their Earth counterparts. In *Cocoon I* we were treated to a dazzling light show over the swimming pool. In *Cocoon II* Tahnee Welch (Kitty) and Steve Guttenberg (Jack) go to a French restaurant for dinner and something in the appetizer has a delightful effect on Tahnee's character. Explains Farrar, "She goes into an uncontrollable display of passion. Her passion starts a fireball – like in the first film – but this time it's a drunken, crazed fireball that appears in the restaurant and starts chasing Jack around he room. It's a pretty funny scene, and the animation work on the fireball was more



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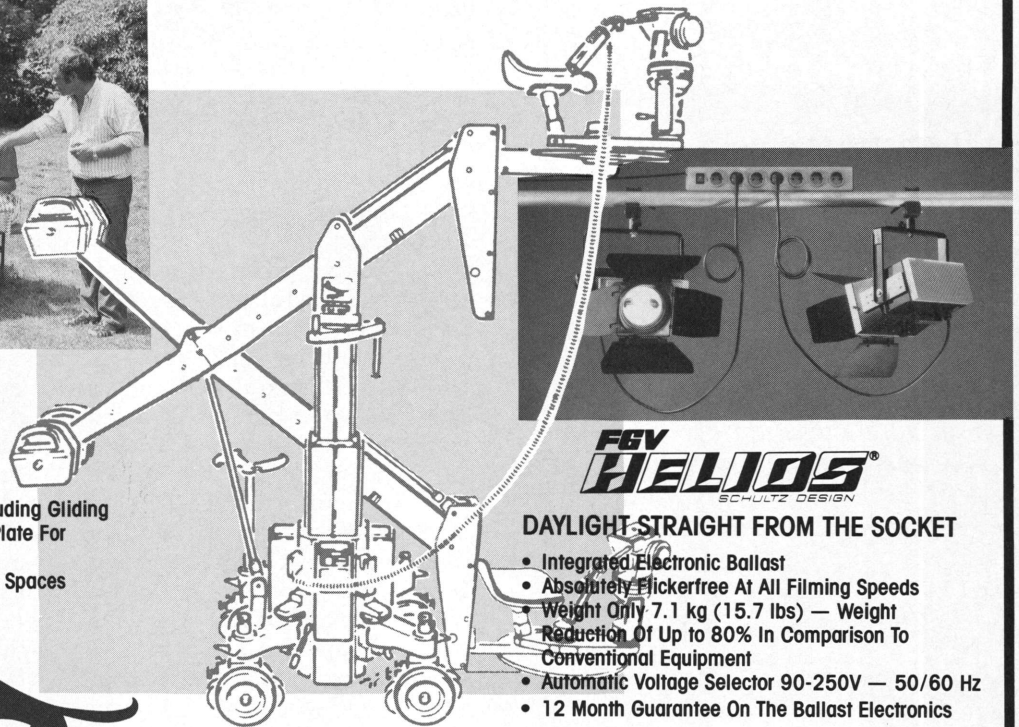
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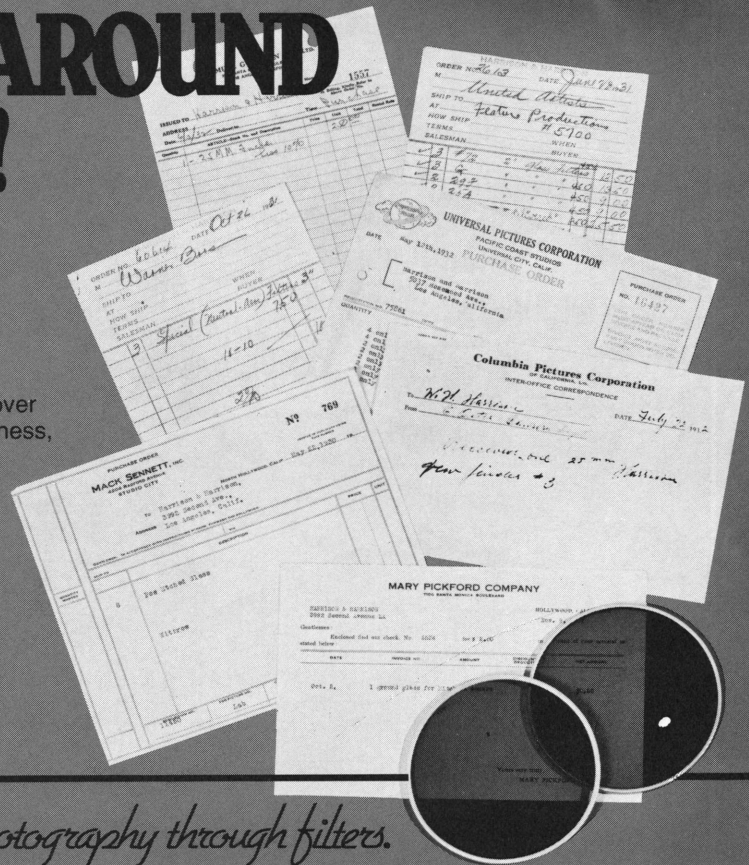
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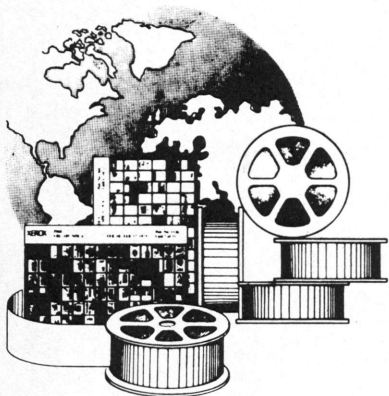
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complicated and slightly different  
than what happened in the first  
show.

"We tried to have more  
colors and changes in speed and  
motion to indicate changes in  
mood. When it slams into the wall  
the shape changes and sparks fly  
off - I think it's going to be a pretty  
nice scene."

In any scene where an ef-  
fect is introduced after the fact, ILM  
prefers to work from storyboards.  
They carefully lay out the choreog-  
raphy to make sure all the timing is  
right. Continues Farrar, "As we did  
for the final shots, Dan and I spent a  
lot of time working out shot-by-shot  
how we would cut the sequence  
together. You can't shoot a bunch of  
shots and hope it will cut together  
later as you sometimes do in live  
action. You have to know where the  
cuts will be because once you  
shoot, you're locked in. You have to  
make sure you have allowed  
enough time for something that is  
not there to travel through the  
scene at a projected speed that  
matches the cut you envision later.

"The only way to do it is  
just walk it through, step-by-step  
and shot-by-shot deciding where  
the fireball is going to hit and  
where there are going to be practi-  
cal explosions on the set. Then, of  
course, you have a room filled with  
extras. You have to make little  
speeches over and over again:  
Where the fireball is, where they  
are supposed to look, what their  
cues are, etc. Everybody just has to  
imagine it. And they can - if you  
are very clear on where the fireball  
is going to be and what it is going to  
be doing. You hope that everybody  
can help you with the look that you  
want to achieve.

"To help determine if ev-  
erything was working we used a  
video playback. With it we could  
check and see if everybody's sight  
lines were right. Shots don't work  
perfectly every time and you have  
to be able to say, all in all, this take  
works better than the previous  
three takes. You have to really  
study the scene and make sure that  
where your eye is going is where  
the audience's eye will be going,"  
said Farrar.

For Vecchito, "The fireball  
sequence actually turned out to be  
easier than we thought it was going  
to be. The director and the pro-  
ducers didn't want us to do a lot of  
interactive light in the restaurant.  
They weren't looking for us to  
change the overall lighting in the  
restaurant like we had done before  
in the pool sequence in *Cocoon I*.  
Since we didn't have to change the  
color, we were able to just tint the  
restaurant toward the red side.

"In animation," he ex-  
plained, "they actually shot the  
fireball. They flew it around to  
match the perspectives of the room  
with a slit scan model. Then to add  
impact as the fireball flew around  
and hit things, pieces of the fireball  
would splatter off. The animators  
created the splatters. There is a spot  
where they did some interactive  
light on the floor and on the piano.  
It is probably the longest shot in the  
sequence. It is a wide shot of the  
restaurant and we see the fireball in  
the back of the restaurant careening  
towards us and knocking people  
over. As it gets closer to us we see  
some interactive light as well as the  
reflection in the piano and on the  
floor. They also added a vapor path  
so as the fireball streaks around the  
room, it leaves a wispy trail behind  
it.

"For the optical part of the  
process we used a generic vapor  
path, which is what we used when  
we were making the alien. It's the  
same effect we used on the alien,  
but instead of having an alien we  
just filled the frame up with the  
effect. The fireball is either fully or  
partly matted in and its exposure  
changes when it is either nearer to  
the camera or farther away. A color  
change was built into the fireball in  
animation. Instead of being all red  
or orange there is also some green -  
maybe Kitty is also jealous..."  
Vecchito adds.

Passion, jealousy, aliens,  
spaceships, old age and youth -  
Farrar and Vecchito agree this film  
has it all, but Farrar warns, "Don't  
forget your box of tissues, you're  
going to need them. I just know  
my mother-in-law will love  
this film."  $\Delta$



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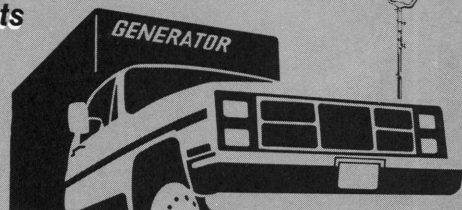
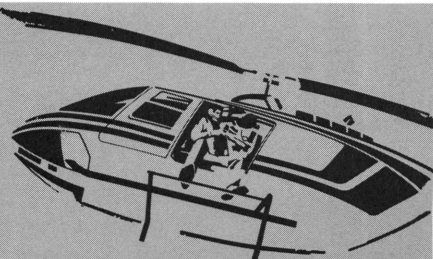
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## *The Blob*—a Gelatinous Villain Comes Back

by Ron Magid

It was inevitable that the slimiest cult star of '50's sci-fi schlock would eventually be resurrected to haunt our nightmares. Thanks to the combined talents of creature effects coordinators Lyle Conway and Stuart Ziff, makeup effects wizard Tony Gardner and post-production opticals and miniature work by Greg Jein, Dream Quest and All Effects, *The Blob* supercedes the original—at least in terms of special effects. But even the special effects crews at times became trapped in the slimy morass, and were only able to extricate

themselves by taking the most extreme measures.

"Part of the problem," says Hoyt Yeatman, who supervised *The Blob's* post-production effects for Dream Quest, "was that *The Blob* hadn't been properly locked down from the beginning. The way the production was set up, all the effects were handled by various groups—in some instances, that can work really well, in others, it can backfire." In this case, it backfired due to stringent budget and time restraints that ultimately yielded very little usable Blob foot-

age during production, where most of the effects work was to have taken place under Lyle Conway's supervision.

"A Blob sounds like a very straightforward thing to make," Yeatman continues, "until you start dealing with things that are two to three feet tall, which we were expected to make move down the road. Since it doesn't have a face or hands, it proved very difficult to get a performance from it—yet we had to make it emote."

Before leaving the production in frustration, Conway had

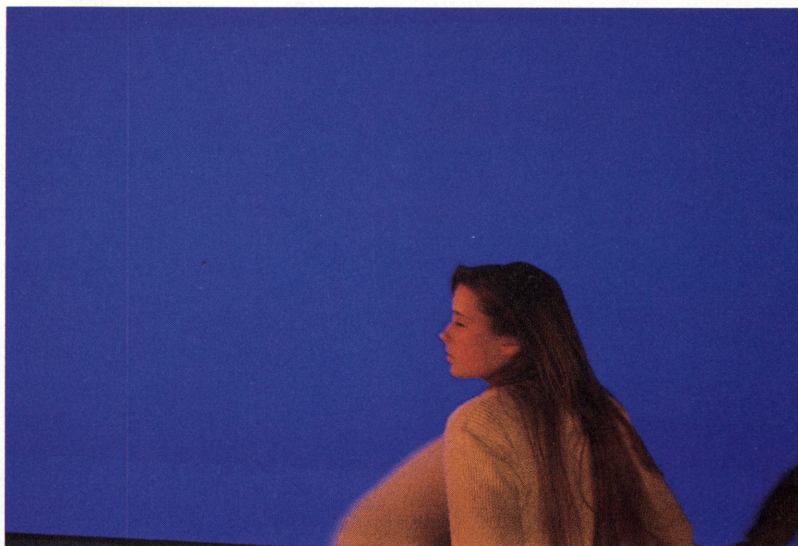


solved some of the Blob's performance problems by using a combination of techniques: for shots where the Blob's movement was limited, the Blob was sculpted full size and cast in stiff rubber, for those where a lot of movement was required, Conway developed the idea of the "Blob quilt" as a puppeting device. The quilt was basically a silk armature with ravioli-sized pockets into which a slimy substance called methylcellulose was injected. The methylcellulose would then ooze through the silk, obscuring the armature completely. By moving the quilt, the puppeteers were able to manipulate what appeared to be a fluid mass with some precision.

As clever as Conway's solution was, there were many problems with this technique. "It literally took hours of preparation to inject this thing," Yeatman recalls. "The puppeteering was very basic – my feeling is it was too basic. Since no mechanics were employed, we were dealing with very slippery, heavy props which couldn't be moved as elegantly as they needed to be. The biggest problems arose from the use of methylcellulose.

"Methylcellulose is a food product – it's the filler found in McDonald's shakes, so if you've ever had one of those, you've ingested the Blob! It's a powder you mix with water, so 80% of the Blob was just that – water – which meant we were dealing with a lot of weight when it got to be 2-3 feet in diameter. It was a very gooey project in which take two took forever because the set had to be cleansed between each take."

For Tony Gardner, who created *The Blob's* elaborate makeup effects, this film represents a major step forward in his evolution as one of the industry's foremost effects talents. "*The Blob* is the first major step I've taken out on my own," he admits. "I've done smaller projects in the past, but the most I ever had working for me was two or three people. Suddenly, I had thirty-three, so it was kind of a big change."



Opposite page:  
Composite of the  
Blob attacking  
movie patrons, a  
recreation of the  
famous theater de-  
struction scene in  
the original Blob.  
Left: Breakdown of  
the theater com-  
posite shot. Top:  
Blue screen fore-  
ground with lead  
actress, Shawnee  
Smith. Middle: Blue  
screen midground,  
the Blob. Bottom:  
Background plate  
of theater and  
crowd.





Photos by Brian Adams

**Miniature street recreation of Abbeville, Louisiana.**

One of the film's most gruesome scenes involves the ingestion of a high school football jock, played by Donovan Leitch, before the incredulous, horrified eyes of his girlfriend, played by Shawnee Smith. "Originally, the sequence was going to be a collaboration between creature effects and makeup effects," Gardner explains, "but by the time we got around to shooting the effect, Lyle had left the film. Lyle's approach was to do it the entire sequence using mechanical miniatures of Donovan Leitch's character. I felt puppets were a really good idea in that they would give us a lot more control and permit us to shoot a wider angle, but I also felt we needed Donovan himself to sell the effect. I talked the director into letting us build a miniature of Shawnee Smith, and I talked Donovan into giving us a day out of his life after principal photography had wrapped. The sequence starts out as a full sized live action effect and over the course of the scene cuts back and forth between the puppets and the actors."

The effect required the construction of two very elaborate

rigs – one full-scale that would house the real Donovan Leitch, and another smaller rig that would hold Leitch's miniature counterpart. Both rigs featured a sliding, pivoting platform of Blob that came up through the floor, as well as a separate piece that stretched from the victim's head to the window behind him, nicknamed "The Waterfall." The impression created is of the Blob moving in two different directions at once – part of it seems to be sliding over its victim and onto the floor, while the Waterfall gives the impression the creature is also moving up the wall and out the window.

"Donovan spent a day in this horrible rig," Gardner laughs. "He sat on a small seat mounted on a rolling platform, leaning forward. His body was encased in a translucent pink fiberglass shell – except for where his head stuck out past the neck and an area where his right hand was exposed."

Over the top of the fiberglass was layered what Gardner refers to as the "Aquapull shroud." Aquapull is a fabric which becomes transparent when wet. "This was really the base structure for the Blob in this sequence," Gardner says. "We made this enormous shroud that fit over the entire rig. It was only open at Donovan's right elbow and over his face, so it protected him and kept him dry. We used urethane tints to paint veins into the nylon base, then we painted the Aquapull on top of that. If you put on a sleeve of this stuff, it looks like your hand is coated in slime – it doesn't appear to have any real structure.

"Over that went what we called the 'Blob jacket,' which was a vest made of Blob quilt that fit over the whole structure and covered everything except his face and his right arm. It actually zippered up the back. This was a bulky piece designed to create a sense of the mass of the Blob. We also used a couple of long strips about 3' wide by 9' long whose sides were heavily quilted while the center was clear silk with small little pockets sewn into it. These moving pieces were streaked with blue while the pieces underneath were streaked with red, and when the streaks crossed

as the fabrics moved on top of each other, there would be occasional flashes of purple. We tinted the slime itself in the pockets varying colors – the closer to his face, the clearer it got, the further away from him, the redder it got, so we created some sense of depth that way.

"Directly on top of the fiberglass were clear vinyl bladders that worked off air compressors, which created a gross surface movement of large bulges. To create fine surface movement, we layered in nylon tricot fabrics which were pulled from underneath at different speeds from different directions. This helped create a sense of movement happening just below the surface – it was really quite a simple way to accomplish it."

The platform Leitch sat on was designed to roll back into a cavity inside the waterfall. The full size waterfall was a fiberglass piece covered with a layer of clear vinyl bladders, Aquapull shroud and three Blob quilts of different lengths which were pulled over it at different speeds.

Gardner's crew created three stages of mechanical effects to pull off the sequence. The first was a miniature of Leitch for the establishing shot where he unfolds and reaches forward. The second was another miniature of Donovan – with his face distended – holding hands with a miniature of Shawnee Smith, as she tries to pull him free of the Blob. The third stage was a full-sized closeup head with the mouth distended out of frame. "That was our only full-scale puppet in this sequence," Gardner says. "There was a fourth stage that was never seen: the very tail end of the blob pouring out the window with Donovan's face stretched across it, his eyes rolled up into his head."

To create the memorable effect of Shawnee Smith pulling Leitch's arm off, Gardner used his over-the-shoulder "Blob sled," which featured an arm rig with a quick release mechanism he could plug a fake arm into. "Shawnee actually fought against someone riding the back of the sled holding the pistol grip release, and he could let go at any time," Gardner recalls,

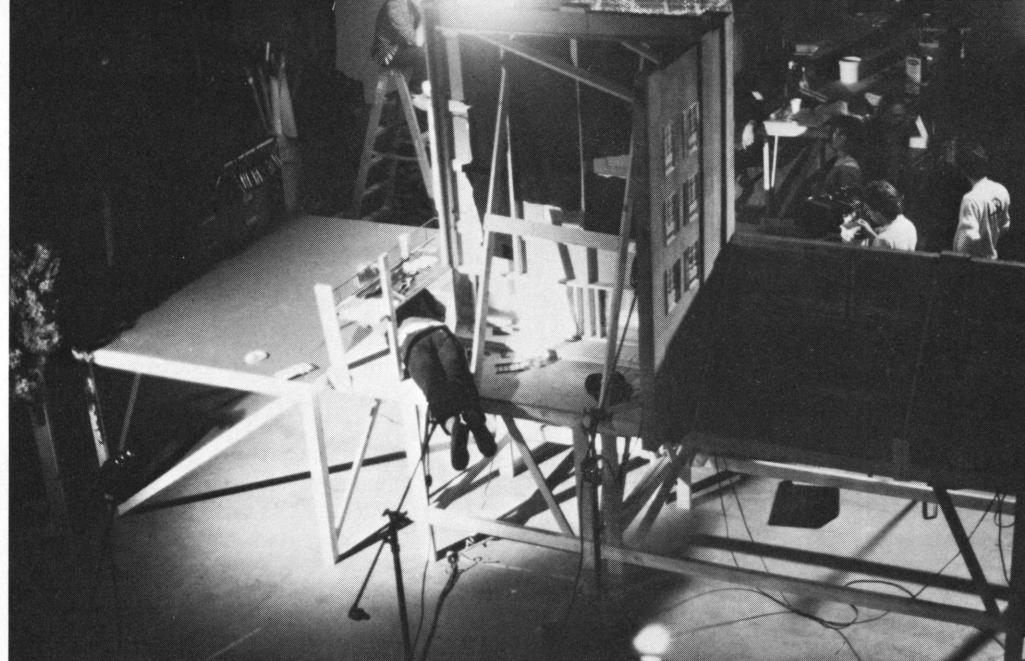


"then all the tendons would stream out and she'd go flying! She could put all her weight on it – the take they used was the one where the operator got a little trigger happy and let go before she was expecting it, so her look of surprise was really genuine."

Most remarkable about this effects sequence is how quickly Gardner and his crew put it all together. "The new effects coordinator, Stuart Ziff, told me on a Wednesday that the director intended to shoot this entire sequence the following Tuesday!" Gardner avers. "'We have no idea how to do it,' he told me, 'but you've been in the shop awhile, so we know you'll do a pretty good job. We're going to have dinner. See you!'" I had six days to figure that one out.

"We worked straight through the weekend experimenting with different ways to make this thing work. Fortunately, people on Lyle's crew helped us out by providing Blob quilt. Marilyn Dozer and Noel Escher, who sewed most of the quilts, joined our little group, along with a couple other Blob technicians. We built all the over the shoulder stuff in six days! In dailies, the director said, 'That's the best Blob I've ever seen! I want them all to look like that!' so we just improved on those ideas for our miniature and closeup effects. Eventually, I was asked to handle the Blob element through the entire sequence."

Another memorable sequence occurs in a restaurant's kitchen, where the Blob takes a cook on the surprise ride of his life – head first, right down the drain! Nicknamed the Drain Ride, the effect was a collaboration between Gardner and Conway's crews. "That was really simple," Gardner says. "It consisted primarily of a sink with no bottom. The effect of the cook's head collapsing as he's dragged down the drain was a variation on one Lyle's 'Jack Pumpkinhead' puppet for *Return To Oz*. In this case, the actor had his head bent forward in a hole which was covered by the Blob element, and a fake neck and head were attached to his shoulders. The whole thing was designed to col-



Above: *The Blob* stage at Dream Quest. Left: Model-maker touches up the miniature Main Street set.

lapse to give the impression his head was being sucked down the drain.

Once the cook's head had disappeared, Gardner's crew used a full sized decapitated dummy to finish the Drain Ride. "We manufactured a rig we nicknamed the 'spin n' barf' – it was a giant lazy susan that held two puppeteers. Each of the puppeteers operated the hot melt vinyl legs of the cook dummy, and one of them doubled as his arm. They were strapped in with blood tubes and steam tubes under the sink, all wrapped up in raincoats."

After dragging someone down a drain head first, what do you do for an encore? Blob someone in a phone booth! In this case, the unfortunate victim was Candy

Clark, who attempts to summon the town's sheriff after the unpleasant incident in the restaurant. "We shot the first part of the effect with Candy Clark in a phone booth on a soundstage surrounded by giant Blob quilts," Gardner explains. "A rig was built above the phone booth so that six of the puppeteers could slowly let the Blob slide down over the sides. It crawled on its own weight. In the next cut, the phone booth appears to be surrounded by the Blob, which was really just a water tank constructed on two of its sides. The water was semi-transparent and tinted pink, and there was Blob fabric moving about in there to tie the look together. It was basically a giant aquarium."

Inside the aquarium, Gardner's puppeteers operated the





**Hard plastic model of the Blob with a soft end. This is the version of the Blob which explodes up through the ground onto the Main Street set.**

semi-dissolved remains of the town sheriff, who ironically appears as Clark is trying to reach him by phone. "We had two guys in the water puppeteering the dead sheriff as he made his grand appearance. The sheriff was basically a mechanically assisted handpuppet in that scene. Chris Gay operated the head and neck and shoulder movements, and the eyes were radio controlled. The sheriff had been partially absorbed by the Blob at that point, and half his face is streaming off as if it's been dissolved – I was going for the look you get when you pour colored liquids in water. We used a lot of semi-transparent fabric with painted vein patterns trailing off one side of his face to create the right look."

Originally, the effect of the Blob covering the phone booth from the outside causing it to implode was to be done full scale by Gardner and Conway's crews, but the time crunch became too critical. "We were supposed to do the effect involving the Blob devouring Candy Clark," Gardner says, "but after doing several tests, the creature shop realized that the Blob quilt and the air mortars weren't all that controllable full scale, so they decided to go half-scale. We had already built a full-sized dummy of Candy Clark with basic head movement and spring loaded arms that would press against the glass but which were able to collapse inwards when the glass shattered. At that point, we were in the last week and a half of inserts and we didn't have time to redo the effect, so we provided the lifecast and bodycast and hair sample to All Effects, and

they manufactured the half scale puppet for the shot."

Eric Allard, head of All Effects, recalls that he was basically hired to work mechanical post-production in conjunction with Dream Quest, but they soon began taking a larger and larger role in post-production. Assisting Allard were Ron Griffin, Lewis Lindwal, Phil Bartko, Dennis Curcio and pyrotechnician Joe Viskocil.

"The problem with the phone booth gag was that it was conceived as a full-sized physical effect," Allard explains, "which meant we had to move that mass of Blob in order to make something happen. It was turning into a big rigging job, whereas I felt if we were to do it half scale, it would be much easier. As long as we could make the phone booth and the girl look right, the Blob would be much easier to deal with, since the half scale Blob would be 1/8 the mass of the full scale Blob."

Using the lifecast and bodycast of Candy Clark that Gardner had made, sculptor Wayne Strom recreated the actress 1/2 size, while Allard's crew built the phone booth out of softened aluminum. "It was basically a large rectangular box," Allard says. "We put a single sheet of tempered glass approximately 14" wide x 3' tall on each side. Each of these panes was fitted with a glassbreaker on the floor, and when they struck the tempered glass, it would all shatter at once. We added the mullions and door detail on the inside of the booth, so from inside, it looked like each pane was broken up into four separate windows.

"Outside the booth, we had six air mortars positioned about 18" away from the glass. We loaded the big steel cones with about 100 pounds of methylcel and blob silk apiece before aiming them at the phonebooth. Everything was supposed to work together – puppeting the Candy Clark miniature, breaking the glass and firing the air mortars – but we had a little bit of a disaster in terms of not getting it on the first take.

"The first few times we tried the effect, we found we were containing the methylcel too much

in the air mortars and the pressure was too high. We felt that the higher the pressure, the more violent the impact and thus better the effect would be, but too much pressure aereated the methylcel, turning it into a white foam and ruining the shot. We ended up having to back down the pressure and move the mortars away from the phonebooth a little bit and it worked great."

While Gardner's effects work was elaborate, it was also straightforward, unlike the task that faced Dream Quest. "The director had a vision," Hoyt Yeatman explains. "He wanted to see this chaotic, stroboscopic light effect going on inside the theatre during the Blob's attack. The problem was that once you establish something like that in a scene, you have to follow it through the entire sequence. The shots that involved the Blob – which were composite shots – needed to have a continuity of the strobelight effect on the Blob itself. Most of the shots in this sequence consisted of three elements – a background shot inside a real movie theatre with a stroboscopic light going, a mid-ground element consisting of a quarter scale miniature of theatre seats and a quarter scale miniature of the Blob, and then a blue screen foreground element. All of these elements had to have the same stroboscopic light pattern occurring from the same direction and with the same frequency as in the live-action background plate.

"We ended up using a device we invented some time ago called Blinkatron, a remote control lighting device which incorporates a microprocessor similar to a motion-control device. It can control up to eight channels of strobe. The live action camera and/or the VistaVision effects camera are connected to the Blinkatron via cable and once the camera gets up to speed, a little light would mark the frame and the computer would play back whatever program we'd typed in. We were using high speed strobes we could fire up to every frame and on the keyboard we typed in a very random type pattern and we'd play it back until the director got the look he wanted.



Then we saved that information on a disc, which was used to shoot the live-action, our miniature stage-work and once again when we shot our foreground blue screen."

An unfortunate drawback of the director's use of stroboscopic light was that it drew attention to the Blob effects, making the creature appear as if it were stop-motion puppeted. "Actually, there's only one little stop motion sequence in there," Yeatman insists, "when it clobbers a theatre patron. The rest of it was high speed live action miniature work. It looks like stop motion because of the strobe light effect - which is a negative result of the director's scheme, since it does freeze each frame. Stop motion didn't mix well with the fluid nature of the Blob, but we used whatever worked!"

"Stuart Ziff was responsible for the Blob puppet used in the theatre," Yeatman continues. "The techniques were still quite basic. I think if they'd built something out of a lighter weight material it would have worked better, but we were stuck with methylcel and quilt puppets. A very intricate rig was used to puppeteer the Blob in that sequence - something we called the turtleshell, which was an oval shaped piece of fiberglass that ran on a track and which served as a skeleton for the Blob. The miniature seats constructed by Greg Jein were then added to the same track, and as the turtleshell would move across camera or towards camera, the chairs would fold underneath, creating the illusion that the Blob was engulfing the seats in its path. It was a very intricate device that All Effects, Eric Allard's company, created. Between the turtleshell and the methylcel bags were air-bladders that were connected to the Ziff-organ, a device that allowed air to enter and exit the bladders to help animate the outer methylcel surface.

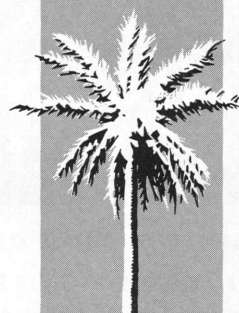
"There was also a lot of wire and rod puppetry in that sequence. There were cable and rod marionette systems above the table, as well as other puppeteers working under the table top. Many times, there were twelve to fifteen people working beneath the table,

wearing raincoats and slickers, covered heads to toe by the end of the day in that methylcel goop! We later matted the rods and cables out using articulated mattes."

The Blob's shiny surface created huge difficulties for Dream Quest in terms of any type of optical matting. Realizing that backlit bluescreen and other backlit systems wouldn't do because of the Blob's reflective nature, Yeatman employed front projection bluescreen, which worked well for pulling mattes off the shiny creature. "There were two reasons we used this technique instead of simply rear-projecting the background plate behind the Blob effect," he explains. "One, we were shooting at a very high frame rate. Two, we were never sure just when the Blob would hit its mark, so we could never match it up exactly to a rear-projected background - everything had to be composited in optical in order to ensure the Blob's actions coincided with what was happening in the background and foreground of each shot."

Complicating things even further was the fact that many times the live action element would be moving forward at 24 fps, while the effects in the background were running in reverse at 72 fps. "That was another reason we required so many optical composites," Yeatman says. "Since we were mixing a lot of frame rates, direction and gravity tricks, we put together a density control device which worked with the high speed Vista-Vision cameras, allowing us to change frame rates within a scene because we had these opposing demands.

"There were sequences in which the Blob would burst through a door and then shoot into a room - and we wanted all of that to move very quickly, so it had to be undercranked. But once it shot out into the room, we wanted to maintain a feeling of scale, so the frame rate had to be high speed. On the lens, there was a variable ND filter system, similar to the devices made by Cinema Products and Panavision. Those systems have particular problems - one uses polarizers, which use up a lot of light, while



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the other changes the shutter angle and makes the shots appear to strobe. Instead, we used a variable ND wheel which went from clear black to four stops down in a very slight progression. As the camera speed changed, the little black mechanical box we built maintained a constant or net exposure. As we turned the frame rate up or down, this little wheel would track and keep the amount of light passing through the lens constant."

All of the miniature sets Dream Quest shot for post-production Blob effects were built by master miniature maker Greg Jein, who is most famous for his out-of-this-world creations for *Close Encounters*, *Batteries Not Included*, the later *Star Trek* films and new TV series. Before doing any building on *The Blob*, Jein first went to Abbeville to walk the town, where he took panoramic reference photos of the buildings as they appeared at that time - later, they were given false fronts.

Jein decided to construct the main Blob miniature, the town of Abbeville, in a 1/8 scale "because it worked for me on 1941," he laughs. "A lot of car parts were available in that scale, so we didn't have to make all these scratchbuilt automobiles, though we wound up sculpting most of the cars ourselves and a lot of the accessories. Unfortunately, in that scale we ended up with a church steeple that was 15 feet high, which nobody wanted! They couldn't get it back far enough on set in relation to where it was on the location. It either should have been scaled down or they should have pushed it back through the wall of the soundstage. The steeple was the first piece we built just to see how fast we could do it - we put it together like a big parade float. It worked out okay, and gave us some ideas about how to use mass produced vacuform bricks. The whole town took three or four months to construct. We had a lot of good people we borrowed from other companies who were pretty dead at the time, so the quality was actually pretty good for a low budget/medium budget film."

The town hall and its trees were probably the most difficult

items to construct. Jein built the city hall and contracted Mike Hosch and Dave Schwartz to build the two trees in front of it. "The trees were a big worry," Jein admits. "The director felt if we couldn't duplicate the trees in miniature, he'd have to find another location, so that was the biggest burden on us. Mike and Dave did a real good job using partial live foliage and plastic leaves. They originally used live leaves, which gave it a better look, but they all died by the time they got around to shooting it."

### CHRIS GILMAN - DILIGENT DWARVES

The ultimate disposal of the Blob was left in the very capable hands of Chris Gilman, head of the relatively new effects facility with the unlikely name, Diligent Dwarves. After the Blob was blasted with a large dose of CO<sub>2</sub>, it freezes over and becomes a Blobsicle - a crystalized blob - which Gilman and company ended up vacuforming out of lightweight plastic, to the pleasant surprise of *The Blob's* director. "Originally, they wanted to make the frozen Blob in resin," Gilman laughs. "I said, 'No way! It'll weigh nine zillion pounds!' Instead, I told them we could vacuform it out of clear plastic, and paint it from behind. They weren't sure vacuform could achieve the look they wanted, so we agreed to make them a sample. Rima Litonjua made a quick crystal pattern from wood blocks - we made molds on those and cast the pieces out of hard urethane, which we glued onto a board. We then laid resin around the base to join them all together, then drilled a bunch of holes and vacuformed right over that to create a real quick 6' x 6' piece."

The powers that be of *The Blob* were impressed. The only trouble was they needed a lot of frozen Blob in a hurry. Even Diligent Dwarves would have had trouble turning out the 130 4' x 4' panels required in so short a period of time - and that was the least of Gilman's problems. "We were real concerned that the frozen Blob crystals would appear like a repeated patchwork pattern," he admits.



"To solve that problem, we created one main pattern, but within that pattern we had nine individual plates in the middle that we could pull out and rotate – like a little jigsaw puzzle in the center. We used all nine plates all the time, we just pulled them out and rearranged them to create different patterns. This allowed us to pull 324 variations off that one pattern! We'd pull five of any given pattern before rearranging the center section. That way we could interstack five of them, instead of stacking 130 panels individually. They nestled like egg crates onto five or six pallets four feet square and four feet high.

When the Diligent Dwarves crew arrived at the Abbeville, Louisiana location, they set up all 130 panels of frozen Blob like a giant jigsaw puzzle in a vacant parking lot. Once the panels were laid out in the basic shape the director had specified, they used magic markers to sketch its outline before stapling the panels together into larger panels measuring 10' x 12'. The larger panels were then numbered since it wasn't possible to leave the frozen Blob set up overnight for fear it would be vandalized or stolen.

"We were originally supposed to set the Blob up on Saturday morning so they could shoot through Saturday night and wrap sometime Sunday morning," Gilman remembers. "Then someone decided they wanted to shoot with it Friday night and wrap out Saturday morning, so we hustled about 15 people together, and each of us carried the large sections down the street and set them up in front of the courthouse. When we got there, we realized we had a big problem. We had originally been told the truck would be blown up in a certain spot, but when we got to the courthouse, we realized that during shooting the night before they had blown it up in a completely different position – right in the middle of where our frozen Blob was supposed to be! We were all wondering how in hell we were going to set this thing up. We couldn't just arbitrarily take away sections and cut around this truck, especially since we had to have this

thing set up in less than ten hours!

"We did some quick thinking as the carpenters began constructing wooden risers ranging from 1' to 18" to 2' in height, in order to give the Blob a mountainous shape. We decided to work our panels as close to the truck as we could, while arranging it to span the street from curb to curb. The director said he wanted it to look like a squashed tomato, and did this quick sketch on a piece of wood, which we had photocopied. We put our original grid pattern over his sketch to figure out where our panels would have to go to accommodate that shape. It was a nightmare. We had to relabel each part of the grid in order to keep it all straight – if we cut a piece away on one side of the pattern, it often had to mesh with something way over on the other side. We actually gained about ten feet of frozen Blob from this!

"We got the thing put together up to the truck, and since the truck's flatbed was made of wood, we stapled the panels right up to the bed! We bent the excess panels around the truck, stapled them completely along one side of the truck and halfway along the other, then draped them down onto the pavement below – it looked as if the Blob had just finished flowing out from beneath this truck before it blew up and froze. Then we brought three or four tons of rock salt – dyed purple and red – down to the set by the dumpsterful and dressed the edge of the huge prop. Then we laid broken chunks of resin in and about that to make it appear as if pieces of frozen Blob had broken off and fallen to earth."

Dealing with an uncooperative Blob and an impossible schedule, effects artists Lyle Conway, Stuart Ziff, Tony Gardner, and Greg Jein, All Effects and Dream Quest managed to produce effects footage that far surpassed that in the original film. Whatever the new *Blob* lacks in originality was made up for many times over by the tremendous ingenuity these talented artists displayed under pressure. In years to come, these effects may be the only reason anyone will watch this otherwise disappointing film. △



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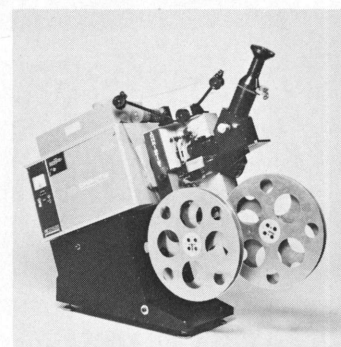
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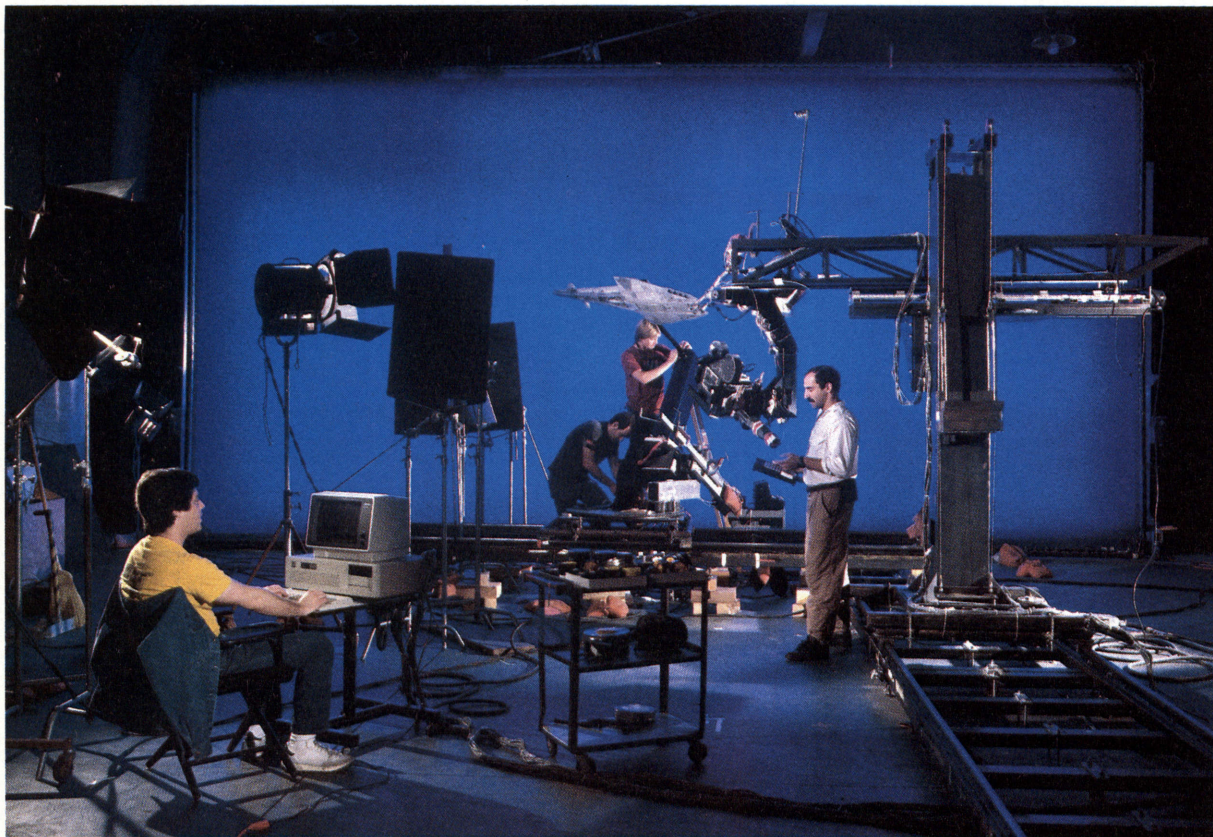
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# Reflections 6 : Edlund

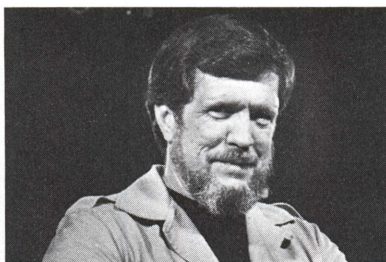
Setting up a motion control miniature for a blue screen shot. Below: Richard Edlund, ASC.



Photos by Virgil Mirano

"Blue screen has had a stigma attached to it as a process for many years. It seems you always remember the bad shots and not the good ones. The good ones never look like blue screen shots," said Richard Edlund, ASC, by way of introduction to the extremely complex science of lighting for blue screen.

The idea of being able to insert one film image into another film image has been around since the earliest days of filmmaking. But only in recent years – with the use of modern computer technology, the continually changing science of film emulsion, ever more perfect optics and the intangible element of experience – has blue screen been accepted as one of the most important tools of effects photography. Edlund's own career is an eloquent state-



ment of how useful the tool can be. He has supervised visual effects for such films as *Star Wars*, *The Empire Strikes Back*, *Raiders of the Lost Ark*, *Poltergeist*, *Return of the Jedi*,

*Ghostbusters*, *2010*, and recently, *Die Hard*.

Previous *Reflections* (in *American Cinematographer* for 1988) have been drawn from a series of lighting seminars co-sponsored by Panavision and the University of Southern California. This particular article will address more generally the topic of lighting for blue screen and reflects in part a series of lectures Edlund gave in China and Japan under the sponsorship of Eastman Kodak.

"There are a lot of scenes that simply could not have happened any other way: the Marshmallow Man walking down Broadway in *Ghostbusters*, or people walk-

ing through fire in *Raiders of the Lost Ark*, or the space walk in *2010*. The catch is, each of these sequences required a different approach to the blue screen process. There isn't any one approach or formula that works for every situation. Each shot has got some quirk about it that you have to fix," Edlund explains.

"Blue screen requires a lot of attention before you can actually shoot. Planning and sequence design are of paramount importance to the success of a blue screen shot. Careful design is important because the background plate for a blue screen shot may be done simultaneously with the live action, but the blue screen element may not be shot until after principal photography has wrapped. So exact choreography of the sequence and the actors in the sequence cannot change without considerable expense for plate reshoots.

To forestall such problems, Edlund explains, "We go through each shot with the director and a storyboard artist.



We find out what shots in the film our shots have to match and how they have to cut in. And, of course, to match shots our lighting has to match the lighting of the director of photography. We take counsel with him, get clips of his material and brush up on the lighting technique that he is using in the movie so we can match it.

"There are times when the aesthetics of the film conflict with certain parameters we must stay within when we shoot blue screen. The basic parameters in blue screen include the fact that you cannot have an actor or actress wearing any blue clothes that are the same color as the blue screen. If they do, you wind up with transparent clothes. Other problem colors in blue screen are yellow (the complement of blue), purple and of course, the deep royal blue that we use for the screen. These colors are difficult to coax back into a scene. Quite often, it is not important to have them, so the costumer can come up with a sympathetic color scheme."

In preplanning, all the nuances of light must be considered. For instance, as Edlund explains, it is difficult to match the foreground and background elements if the plate was shot in daylight and the blue screen work is being done on stage. "Usually stage photography is shot with tungsten light, which has a different quality to it than daylight. You are not using the 85 filter so the color temperature is different. There are ways to correct the light and balance the color, but the negative will still have a slightly different quality."

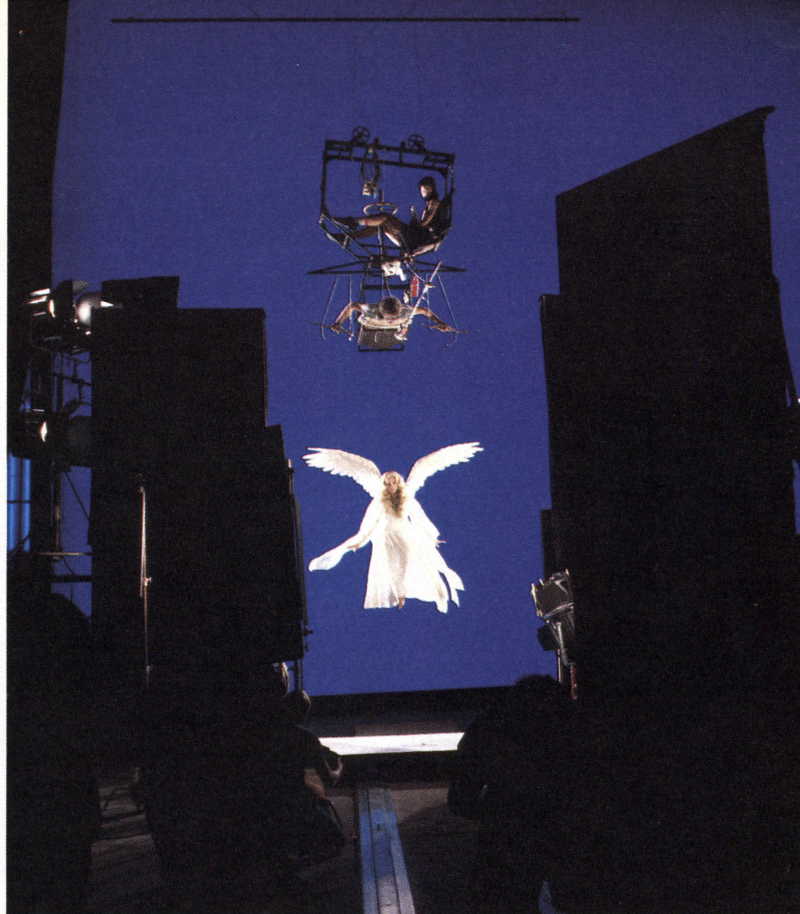
Another not so obvious consideration is the light from the blue screen itself. "You need to be able to control the size of the blue screen. It is difficult to deal photographically with a wall of blue light that is giving off the wavelength that your film is most sensitive to in its blue layer. That huge screen not only functions as a backing for your subject, it functions as a fill light for your set. You have to wash out that blue fill."

"You must keep in mind that the reason you are doing a scene in blue screen is to get a perfect exposure between the foreground subject and the blue screen that immediately surrounds it. You are mainly interested in the quality of matte edge you are going to get because the matted edge defines how successful the final composite will be. If you underexpose the background then you won't get a good edge; if you overexpose it you won't get a good edge; if it has too much green contamination it won't be a good matte edge. There are all sorts of problems, but the idea is to maxi-

mize the blue area immediately around the actor and minimize the blue spill."

One way of controlling the blue spill is to block off the areas of the screen that are not necessary. Said Edlund, "We hang black over the unused screen and minimize the amount of blue screen that we use. Then we rely upon a garbage matte later to give us back that matting area we have blocked out."

Edlund's comments revealed that the relationship between the final composite and the various elements depends a great deal upon the film stock. Edlund minced no words when he said, "Without the Eastman Kodak Company we wouldn't do a blue screen shot. Over the years they have provided us with all kinds of technical support including special Estar bases and special emulsions. Kodak has also developed 5295 specifically for blue screen and it is just magnificent film. From a photographic standpoint 5247 is still our favorite film, but 5295 is a high speed version of 47 with T grain technology in the blue layer. So it has superior grain and nice contrast. The quality of the image is much like 47; 5295 is ASA 400 and that allows us to work in lower lighting situations. In fact, using Kodak film, we have had no problems matching our work to Agfa and Fuji, if someone makes that choice for principal photography.



*"Angel" in flying rig suspended in front of a blue-screen for Date With an Angel.*

"You see, any simple blue screen shot with just a foreground and a background involves about 15 pieces of film, most of them black and white. Kodak's support in the area of black and white film has been equally impressive. With Kodak we have the ability to tweak, flash, time, control gammas in separation development, etc., which are all inter steps between the original and the final dupe. So far we have been able to match the quality of production footage shot on any film...at least I should say we haven't had any complaints."

Interestingly, the choice of camera for a blue screen shot is not nearly so important. Edlund acknowledged that he has done blue screen with just about every kind of camera available. There are times when the camera needs to be particularly steady, though. For those shots and when he has a choice, he generally chooses to work with Panavision cameras. More important than the camera is the optical printer on which the separations and compositing will be done. To maximize results, Boss Film Corp., Edlund's company, has designed and built its own optical printer. This is not unusual, however. Most effects houses have customized their printers to incorporate specific attributes that aid in the compositing process. Many now include a motion control mechanism that allows the



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optical printer cameraman optimum control of the matte and the image on a frame-by-frame basis.

The importance of this control became apparent when Edlund described two points about lenses. "When you are photographing a large area of a scene that is one particular color – in our case it's blue – then you are going to get a certain amount of flare in the lens from that light. It doesn't matter what lens you have or what coatings are on the lens. That's another reason for masking off any unnecessary blue. The flare in the lens causes an overall change or shift in the bias of the other colors. Therefore, you may photograph a scene with the same lens, the same camera, same film as the live action director of photography, but if you have that overwhelming blue fill, you cannot ever really time the effects of that light 'veiling' out.

"The second point is cameramen are always after manufacturers to develop very fast lenses – T 1.4s, for instance, and wide angle lenses. In order to give a cameraman a fast lens there are certain trade-offs that must be made. One of those trade-offs has to do with the chromatic aberrations in the lens. Chromatic problems always get progressively worse as you get further towards the corners of the lens field. You may have perfect chromatic correction in the center of the lens, but as you get out to the edge, the colors start focusing on slightly different planes. You don't notice that, generally, when you are watching a film, but when you are extracting a matte from the very far end of the color spectrum, the blue part of the image can actually turn out to be a little bit larger than the images from the other colors.

"More simply put, if you are photographing an object that is in the center of the screen, then the matte will be a perfect fit. But when you have a large object that fills the frame, the matte may be oversized slightly on the outside because the colors aren't focusing in the same plane. The blue is usually focusing a little bit further outward of the other colors, which would make its matte a little bit larger.

"Consequently, you get on the printer and you realize that even though you've done everything right, the matte doesn't fit. For example, you can have a situation where an actress is walking across the screen. You fit the matte on one side and by the time she walks to the other side of the screen she has a matte line on one side. In the past, you would have opted to fit her in the center and live with the fact that she would have a matte line on one side when she began her walk across screen and on

the other side when the shot ended. Because we have incorporated motion control technology in our printer, if we have a two-thousandths of an inch matte line around the girl, we can fly the image in the printer a thousandth this way or that way and line it up. It's pretty amazing to think about, but that kind of precision is available in off-the-shelf technology."

As for metering the light in blue screen, it's every cinematographer for himself. Edlund has watched great, old-time cameramen go at it with a paddle meter, a white beachball and a grey card. One cameraman has a hot-rodded Pentax meter, another a digital spot meter. As in the case of live action cinematographers, each one develops a system for checking the light. The difference in blue screen photography is what the blue screen photographer needs to know about the light in his blue screen shot.

According to Edlund, "When you read the light you want a densitometer reading of .08 to .12 in the red, .65 to .70 in the green and about 2.2 in the blue on the negative. You can shoot that at T22 with enormous amounts of light or you can be shooting at T1.5 with less than 25 foot candles. None the less, you want the blue to read at 2.2 regardless of the stop you are shooting at and the blue reading has to do with the brightness of the screen. To control the brightness of the screen we use large NDs on the screen for gross changes, and a dimming circuit for fine tuning."

Finally, special effects facilities have very different relationships with the film laboratories from their live action counterparts. The professional labs are used to develop color negative and to print and time the final composites. An in-house black and white lab is very important to the blue screen process. "It's economically sound, of course, but also we are always playing with our black and white separations and matte development. We can change emulsions, dryer temperature, development time and so on if necessary, to meet the requirements of each shot and with our own lab we have a lot more control," explains Edlund.

In the final analysis, then, lighting for blue screen would seem to require a book to understand. But Edlund isn't sure that a book would help. The basics are fairly easy to understand, but how to finesse all the variables is the lesson of experience. "We at Boss Film Corp. have done more blue screen shots than I can count and we are pretty proficient at it, but we are still not undaunted by the process. Even if you do a lot of work, your problems are not over. It is difficult to do a good blue screen shot because every shot is different." △



# The Light On Her Face

by

JOSEPH B. WALKER,  
ASC

and

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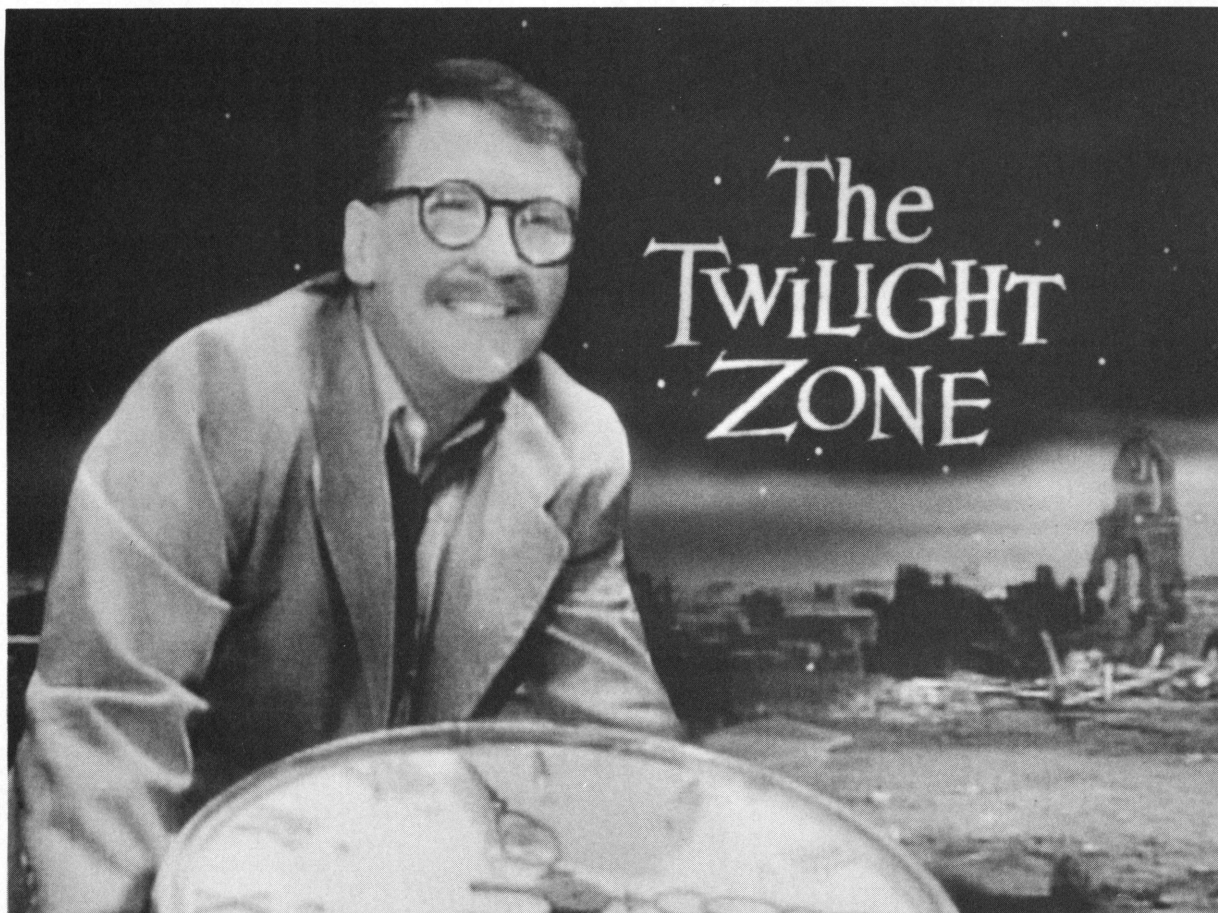
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## Video Tricks for *Twilight Zone* Nostalgists

by Paul Mandell

"Who are we?"... "You are obsolete!"... "Who is it, who's there?"... "My name is Talky Tina, and I'm going to kill you!"... "I'm a manikin! That's what I am, a manikin!"... "I know we're being stalked!"... "Incredible race of giants here!"... "This aircraft has gone back into time."... "All the time I need, and all the time I want!"... "Look, I swear it isn't me!"... "When, nurse, when will they take the bandages off?"... "I believe you're going — my way?"

Against a crippled landscape, a succession of characters pop up and cry out in shock, fear, and rage. The broken milieu stretches as far as the eye can see, like an Yves Tanguy painting come to life. Now what is this place, and who are they?

As any fan of *The Twilight Zone* can tell you, these fevered rants do not

emanate from the pits of Hell, but rather from the mind of Rod Serling who, between 1959 and 1963, wrote the *creme de la creme* of his legendary TV series. Eight of his best shows, including "Judgment Night", "The Lonely", "In Praise of Pip", "The Invaders", and "Eye of the Beholder", have been packaged by CBS Video on a subscription basis.

For TZ completists, it's high time — classic episodes minus the butchery of syndication. Who can forget mute Agnes Moorehead decimating a spaceship with a meat cleaver — a ship containing diminutive astronauts from planet Earth? Or Nazi commandant Nehemiah Persoff, damned to ride the fog-shrouded ghost of the S.S. *Queen of Glasgow* for an eternity? Or Donna Douglas having her bandages removed in a Big

Brother Society, where "ugly" is the norm and beauty the aberration?

These were bravura shows. Inspired scripts, good directors, performances of a lifetime. They ushered us out of the Fifties on an intriguing alarming beat. And according to CBS, more vintage releases are on the way.

To preface the package, a one-minute montage was needed. The job was given to Charlex in New York, the company famous for the *Saturday Night Live* opening and those Cherry Coke commercials. Using an Ultimatte, Ampex Digital Optics (the ADO), the Paintbox, and good old imagination, the "endless pan" across an electronic collage of live images and artwork has virtually become a Charlex trademark.

More recently for CBS Video,



Charlex created a hand-colored tribute to *Love Lucy* featuring great moments from that show. The characters were colored on the Paintbox frame by frame, but the black & white surroundings were preserved for a magical, nostalgic effect. A computer-animated title sequence for a batch of *Star Trek* episodes followed, which was quite successful for CBS. *The Twilight Zone* montage was a natural follow-up.

The team for this project consisted mainly of four people: Charlex creative director Alex Weil, co-designer and co-director Chris Harvey, Paintbox artist John Semerad, and senior editor Bill Weber.

"For *The Twilight Zone* montage, CBS was much more specific about what they wanted," Harvey notes. "Part of that was based on the ideas of Carol Serling. She was very involved in the definition of what needed to be. Harry Elias of CBS was the liaison. He spearheaded the job from the executive point of view. A group decision dictated that all the elements to be used would come directly from the show – that the look and feel of the artwork and the edit should be true to the show. Naturally this would be done in black & white. All of this was geared to making our piece something that hard-core *Twilight Zone* fans would love to see.

"We weren't going to do something that was too whacked-out. It could not overpower the show; it couldn't look so technically and conceptually modern, or more advanced than the show.

"After many meetings, it was Alex's idea to use great moments from great episodes, and to use 'film cutouts.' Beyond that, he left it up to me, working closely with him, to make all the audio and visual selects and pair them together.

"Alex and I are *Twilight Zone* fans," he points out, "so we started working from what we remembered as great moments. Everybody remembers Burgess Meredith feeling around for his glasses in 'Time Enough at Last'. Everybody remembers Agnes Moorehead swinging her hatchet in 'The Invaders'. So it became a 'name that episode' montage. We found that many of our colleagues shared the same memories."

The style of the montage went through several stages. Initially, Weil and Harvey considered a more disparate approach – the audio from one episode and the picture from another. Or, with a little closer sync, there would be corresponding audio and video, but from different moments. Some of that came through in the final edit – the cut-out image of Nehemiah



Top: Agnes Moorehead swings her axe in "The Invaders." Blurred figure was cut and video-matted over new landscape.



Persoff from the episode "Judgment Night", for example, showed the actor reeling back in terror. The moment was taken as he was being torpedoed by a German U-boat. Tracked over this was his line "I know we're being stalked!" from an earlier moment of *deja vu*.

Chris Harvey had all the episodes on one-inch masters. "I made many rough cuts of various audio and video montages. Alex and I discussed what worked and what didn't, and drove toward a more hard-hitting edit. We wanted surrealism but didn't want to enter the obscurities of Salvador Dali.

"Actually, our earlier ideas were very surreal. We were going to cut out abstract pieces, like the phone dangling in 'Night Call', the sign post from 'The Monsters are Due on Maple Street', and from them make as a background this endless, Daliesque landscape. But it seemed too esoteric. I also had a piece of glass in Jack Klugman's hand from the episode 'In Praise of Pip', after he careens into the Hall of Mirrors. We ended up using a shot of Jack embracing his son, which was much warmer and less abstract.

"Another idea came from the classic episode 'Walking Distance'. I used a





Jack Weston rants that "The Monsters are Due on Maple Street."

shot of a merry-go-round horse bobbing up and down, with a voice-over. Later, I chose a shot of Gig Young sitting in his car. The audio was taken from the scene on the bandstand, when he sees himself as a boy for the first time: 'You're Martin Sloan! That's the way I looked!' The people at CBS found that to be a bit obscure; it just didn't read."

Many rough cuts were screened with Alex Weil and CBS. One problem that had to be solved in choosing and editing excerpts was to avoid 'unintentional storytelling'.

"In film," Chris Harvey notes, "you juxtapose two shots and you tell a story. This we sought to stay *away* from. For instance, in the clip from 'Five Characters in Search of an Exit', we used William Windom's line over the clown's face, 'Who are we?' We had originally chosen his line, 'Where are we?' The next shot in the montage has Cliff Robertson running into view from '100 Yards Over the Rim'. We didn't want to have Windom yelling 'Where are we?' and Robertson saying, 'Just over that ridge there, about a hundred yards.' It becomes a story that doesn't exist. The point was to keep it abstract. It's a montage in a true sense – moment after moment without any linear progression. On the other hand, we wanted to build a mood with pacing and tension, without telling a literal story. That was very tricky."

Once the decisions were shown and approved the next job was to finish the audio. Normally, the picture is cut to finished sound. In this case, Weil and Harvey wanted the audio montage to be very strong. They elected to do the audio first and have much of the tension reflected in the mix.

Harvey took the audio to Photomag Sound in Manhattan. "There's a mixer

there named Rex Recker. I brought him a stack of tapes with the selected voices and soundtrack music. Hours of music.

"I showed him the rough cut. Based on that, we mixed the sound on a 24-track, computerized audio console. We mixed the music first, then the voices. Alex had some suggestions and we made the revisions. We came up with a piece that, if you listen to it, really works as radio. That was key to the strength of it."

For Paintbox artist John Semerad, the biggest challenge was the creation of backgrounds behind the characters. It was made from frames of the holocaust landscape in the Burgess Meredith episode 'Time Enough at Last'. (In it, Meredith plays an insatiable bookworm who inadvertently survives an atomic blast during a 'retreat' to his bank vault. He is hopelessly myopic without his glasses, which fall and shatter in the rubble, dooming his sanity.) Semerad found photographs of rocks, twisted girders and demolished buildings. Using the paintbox stylus, those elements were integrated into the landscape.

"From this, we made a customized landscape for *every character*," Harvey explains. "The customization was based on the lighting of the cut-out character and the camera angle. So the backgrounds were always consistent with the treatment of the foreground character. They move up and down and are lit from different sources. There's a pan from the talking doll to the manikin. That was a lot of figuring out for John: what is the lighting on this character? Is it just key and fill? And so on.

"When we went into the edit, we added time-lapse cloud footage, which was distorted and stretched with the ADO. We also matched the lighting and mood of the clouds to each character. There were some very subtle effects that were added in the edit. There's mist flowing across, and little changes in the shadow. Sometimes we took shadows from the actual character and very softly keyed it over the landscape. These details are perceived only peripherally by the viewer, but it makes it more realistic."

Their next move was to isolate foreground characters from 16 chosen episodes and video-matte them over this contrived background of nuclear devastation and time-lapse clouds. John Semerad began a tedious operation of "cutting out" the characters on a Paintbox by tracing their outlines and electronically opaquing their shapes as hold-out mattes. The mattes are then switched from positive to negative –

matte and counter-matte – for insertion of the image in postproduction.

An arsenal of devices was employed. The Paintbox manufactured by Quantel is a single-frame painting device with a color palette and a stylus for drawing and rotoscoping off a monitor. The "Harry" is a digital frame-storage system, described by Alex Weil as "a souped-up Paintbox with a stack of Winchester disk drives that can hold an entire tape clip, enabling the artist to work on it in a stop-motion mode, picture by picture." In addition, the Harry has switcher functions; it can dissect images, handle cuts and dissolves, and accomplish just about anything one can do in the editing room.

The Kaleidoscope, manufactured by Grass Valley, is interfaced with the Harry. Like the ADO, its primary function is to move an image in any direction. The linkage of these devices provides the video artist with complete special effects capabilities in a relatively small space.

The edited *Twilight Zone* figures were put on the Paintbox using the Harry frame storer and the Kaleidoscope mover. Before mattes were cut, a unique conceptual idea was realized to enhance the power of the montage.

As Chris Harvey explains it, "We wanted to create an 'other worldly' movement to the characters. So we decided to step-print them, to stutter the action. If you have a 3-second clip of 90 frames, eliminate two out of every three frames, and reprint the remaining ones back to the original length, you've got a 90-frame three-second piece – but there are only 30 discrete frames in it. This gives an unusual quality to real-time movement, plus it gives the artist fewer mattes to cut.

"What you see is *every third frame* of the original shot duplicated *three times*. It has more of a dream-like quality. The viewer knows that real-time motion is correct. But here, there's a surprise. Stuttering the image, I think, is a very effective way to do a montage."

With the tape clip loaded on the Harry, John Semerad traced the figures on a monitor with an electronic pen. He cut a matte for each figure, analyzed the light on the figure, decided how high or low the horizon should be, and created a customized landscape for each.

"Technically," says Harvey, "the hardest part was cutting out the characters. Because of blurs, and because they were transferred from film to video, you have a



frames-per-second 'pulldown ratio difference' that has to be resolved. You have to compress or expand your shot so your video frames are discrete and clear.

"There are various tricks to making a matte for a blurred image. You can cut a soft matte with an airbrush. Generally with a blur, aberrations in the matte are so fast, they're not going to jump out. On this job, the safest way was to cut into the blur. If you froze the matte for the frame of Agnes Moorehead swinging the axe, that matte would be smaller than the axe. We found that it looked better that way. Each shot is different; each matte was cut one way or the other.

"It's electronic rotoscoping, really. You do it in a stencil mode. The line you trace is actually inside or outside the contour, the reason being that the distinction between the white area and the black area should be the same as the distinction between the character and the background. If the line was drawn right on that boundary, one of those two would have an edge - the outside would have the edge of the figure, and the inside would have the edge of the background! John provided a matte for the horizon, allowing us to marry each landscape to the sky. First we laid down the sky, then the landscape, and then the figure."

Harvey stresses that everything done in video special effects has its parallel in film opticals. "What we did was create a graphic world, as it would be done on an optical printer. Logistically, it's about the same. There's a matte for every element. The editor has to line the video image up with the matte, just as in film. He does it with time code numbers; they're on the tape. The difference, of course - aside from the superiority of film resolution, especially in dark areas - is that we can see our composites instantaneously. There is no processing, no waiting for dailies. Plus we can tighten mattes or soften them electronically, if they're not quite correct."

Preparation of the elements was done on the Kaleidoscope mover. Once the figures were matched to their backgrounds, the ADO was used to move the landscape behind the figures. Senior editor Bill Weber was in charge of that.

"Bill did the famous *Cars* video. He had a lot of problems to solve in the edit. Most of the figures were married to their backgrounds. Some were not because we had to do multiplaning or a background pan. So various shots were left incomplete. Then we had to choose various clouds from the

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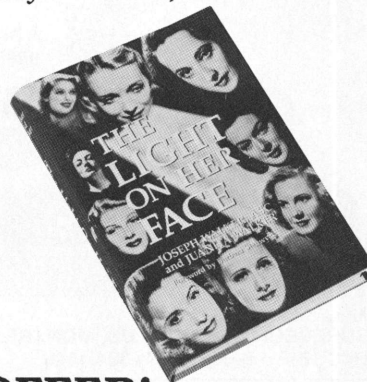
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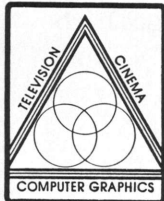


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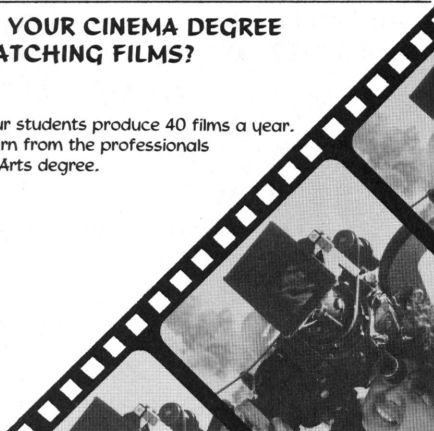


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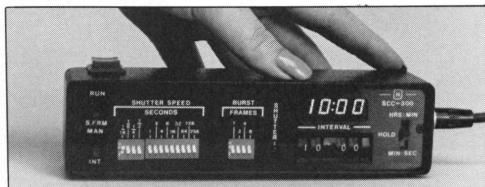
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time-lapse sky footage. The color was stripped out and the clouds were distorted lengthwise. The piece of sky you see on the screen might actually be six or seven screenwidths long. The ADO stretched it out; we used one piece of it. Bill did subtle things, like throwing the horizon line out of focus and putting light into the scene. He took shadows from the original characters and keyed them onto the backgrounds." A nice bit of multiplaning was worked into the first shot — fragments of a demolished building glide by on a separate level to give it depth. The expanding layer of mist was an added element.

The montage is delightful and jarring to any fan of the series. Marius Constant's guitar rhythm underscores the Twilight Zone logo as we pan down to the familiar landscape, complete with moving sky. Bernard Herrmann's music takes over as the macabre clown in "Five Characters in Search of an Exit" bellows in anguish. The executioner in "The Obsolete Man" cuts to Gladys Cooper hearing her telephone ghost in "Night Call". Using the ADO, Talky Tina in "Living Doll" zip-pans to living manikin Anne Francis in "The After Hours" and the landscape recedes in sympathy. Agnes Moorehead swinging her axe dissolves to Cliff Robertson running over the horizon line. Cut to Nehemiah Persoff flailing his arms in "Judgment Night." Dissolve to Burgess Meredith exulting that there is "Time Enough at Last" and his desperate search for his broken glasses. Dissolve to paranoid, bleeding Jack Weston in "The Monsters are Due on Maple Street". Dissolve to Nazi general Oscar Beregi blacking out the camera lens in "Deaths-Head Revisited". Dissolve to Susan Cummings warning loudly that "To Serve Man" is actually an extraterrestrial cookbook — that we are all about to be on the menu. And so on. The piece ends with "The Hitchhiker" 's grisly invitation to the grave.

ADO's and Kaleidoscopes are wonderful video tools. But if the Charlex team discovered anything on this project, it was the power and beauty of the show's cinematography — a reverent nod to George T. Clemens, ASC. As Chris Harvey observed, "It was a pleasure to work with such finely filmed images. I always loved the show for its content. But it wasn't until I got to work on this piece that I became aware of how beautifully photographed that show was!"

Had Rod Serling lived, he would have been proud to see this inventive tribute to his legacy, *The Twilight Zone*. △



## by Mike Maginot

The manufacturers of home video hardware are offering better monitors and bigger sound to consumers with a desire to transform their viewing rooms into a well-equipped motion picture palace. Unfortunately something is being lost in the translation from film to video.

Video software products, tapes and laser discs, are often a poor substitute for a film favorite originally seen on the big screen. The obvious psychological differences between home and theater aside, electronic vs. chemical, transmitted vs. projected, the element that suffers most when we go from big screen to little screen is cinematography.

Allen Daviau, ASC took a big step in the right direction when he supervised the transfer of *E.T. The Extra-Terrestrial* to home video. This isn't an option that is available to every cinematographer, but Daviau's high visibility due to MCA's massive *ET* promotion could change that oversight. *ET* is being released in a pan and scan tape and a letterboxed laser disc.

Many a veteran cameraman has been shocked to see his composition, light values, and color saturation buried in a video graveyard. Adding color to black and white classics and pan and scan to wide screen epics diminishes their quality and reputation. It is sad to see so many consumers satisfied with less than the best. They just don't know how good it can be.

Most people don't go to the movies to see the pretty pictures. Cinematography at its best is sometimes invisible or subtle, and sometimes incredibly flamboyant. But the story, the actors, the emotional elements and special effects are usually the motivation for people to view a film on video.

When theatrical films on tape or disc are reviewed in this column, some care has been taken in their transfer. Sometimes a taste of what was on the big screen is all we get on video and sometimes a taste is enough. But all the hardware in the world can't replace what the software manufac-

turers leave out; more often than not it is the work of the cinematographer.

...

### *It's a Wonderful Life*

*Produced and directed by Frank Capra.*

*Photographed by Joseph Walker, ASC and Joseph Biroc, ASC.*

*(Republic Pictures Home Video)*

'Tis the season for cinematic snow and none falls so well or so sentimentally as the Capra kind. Many companies have video versions of this family favorite, but the one that looks best this Christmas is from Republic Pictures Home Video. This one clocks in at 132 minutes. You won't need to turn off the color and sit through out of focus, mismatched tones of gray - it's in black and white.

...

### *State of the Art of Computer Animation* *(Pacific Arts Video)*

*State of the Art of Computer Animation* is a potpourri of commercial, industrial, scientific, logo, and entertainment animation sharing the common denominator of being computer generated.

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...

### *Tex Avery's Screwball Classics* *(MGM/UA Home Video)*

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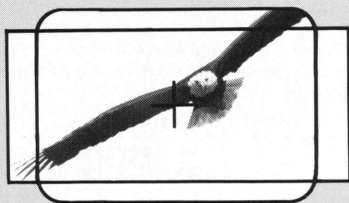
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# Mexico's First Cinema Workshop

by George Turner

Mexico City and the nearby Hacienda Vista Hermosa, described by ASC President Harry Wolf as "a location man's dream," recently was the scene of the first Cinema Workshop ever held in Mexico. Sponsored by Agfa-Gevaert de Mexico, S. A., and held during the last week of September, the highly successful series was organized and run by Rodolfo Jacques, general sales manager of the company, and overseen by General Manager Hansjörg Caminski.

"About 48 people were involved, including directors of photography, camera operators, assistant cameramen, grips and electricians," Wolf, who conducted the workshop, reported. "Also in the group were four beautiful actresses and a make-up woman from Mexico City. Everything at the Hacienda was selfcontained – hotel accommodations, meals, and – most important for us – the marvelous camera locations within the Hacienda and the grounds surrounding

it. It is difficult to describe the fantastic architecture, which makes so many great camera setups possible."

The Hacienda de San Jose de Vista Hermosa, which is a two-hour drive from Mexico City across high mountain terrain, became home and studio for the filmmakers. Established by Hernan Cortez in 1529, 10 years after his conquest of the Aztec civilization, it was the center of life and culture for a large area of what is now Morales. A



large sugar refinery was included within the six-foot-thick stone walls along with the residence building, stables and warehouses. The architecture is in the classical Viceroy style, massive and with spectacular arches. Nearby is Lake Tequesquitengo, which was created by water flowing from a Sixteenth Century aqueduct into a tectonic fault. During the Revolution of 1910-11, Emiliano Zapata evicted the owners, reduced the buildings to ruin, destroyed the crops and distributed the sugar to the peasants. Beginning in 1945 the Hacienda was restored to its original splendor.

Cortez the Conqueror would have been amazed had it been possible for him to glimpse into the future and see his hacienda turned into a temporary movie studio. "On hand were four truckloads of electrical and grip equipment which included the complete line of HMIs and any other lights that might be needed," according to Wolf. "Last, but not least, we had two generators, a 1200 amp. plant and a 750 amp. plant. All of the equipment was of the latest and best. The three cameras were complete Arriflex BLs, which performed beautifully. Agfa supplied 124 and 320 35mm negative in abundance."

The equipment was furnished by the large Mexican rental house, Renta Imagen, owned and operated by Juan E. Garcia and "Cuco" Leoncio Villarias.

"The 48 participants were divided into three groups," Wolf recalled. "Each group had a director of photography, an operator, and an assistant, plus a full crew of grips and electricians." The shooting locations were selected by each director of photography, assisted by Wolf. Scenes were thought up and executed. Each group was guided by Wolf, who discussed the lighting and camera angles with the directors of photography before shooting began.

"Because the cameras were equipped with 5-1 zoom lenses and complete sets of prime lenses, many interesting shots were

possible," Wolf noted. "The artistry and craftsmanship of the Mexican cinematographers was a very pleasant surprise. The fact that we were together constantly made our location shooting very pleasant work."

"The workshop started on Monday, September 26, and finished on Wednesday evening. We wrapped on Thursday and left for our base in Mexico City, where we saw our rushes at Chirabusco Studios on Saturday. That evening, Agfa hosted a cocktail party for all

concerned at the El Presidente Hotel."

Wolf said that he "was pleased with the results of the workshop and impressed by the high standards of the Mexican cinematographers. They have some superb artists there. The Agfa films were put to a real test, being put through everything from black to extreme overexposure, and they performed excellently."

"I will miss the friendship, hospitality and camaraderie of those wonderful people." △



Page opposite: *Preparing tracks for a dolly shot.* Left: *Members of the workshop at the Hacienda Hermosa. Organizer Jacques is at right in front row and instructor Wolf is second from left in back row.* Below: *Cinematographer takes a light reading of actress in the garden.*





## In Memoriam



Ballard and Joel McCrea on location for *Ride the High Country* in 1962.

**Lucien Ballard, ASC**, who was director of photography of more than 100 films over a period of four decades, died October 1 of injuries received in a traffic accident near his home in Indian Wells, California. Ballard achieved fame through an artistic versatility that encompassed the European-styled romances directed by Josef von Sternberg, the shadowy psychological dramas of John Brahm, the violent beauty of the Sam Peckinpah-Budd Boetticher-Henry Hathaway Westerns, and even the roughhouse antics of the Three Stooges.

Ballard had been riding his bicycle when he collided with a tractor and died two days later at Eisenhower Medical Center in nearby Rancho Mirage. A widower, he was 84 and is survived by two sons, Tony and Chris, two brothers and a grandchild.

Born in Welch, Oklahoma, on May 6, 1904, Ballard, part Cherokee Indian, had well-sculptured features that prompted several directors to suggest that he become an actor. After moving to California he planned a career in the lumber business, but

when he dated a script girl from Paramount Studios who took him to one of Clara Bow's three-day parties, he decided the movies were his cup of tea. He found a job as a film cutter at Paramount, which led in turn to his becoming an assistant cameraman. In 1930 he seconded Lee Garmes, ASC, on *Morocco*, with Gary Cooper, Adolph Menjou and the recently arrived German actress, Marlene Dietrich. The director was Josef von Sternberg, himself a talented cinematographer, who liked Ballard's style. Five years later, Sternberg hired Ballard—who was still an operative cameraman—to photograph the artistic but controversial *The Devil Is a Woman*, with the director himself as nominal director of photography.

The picture caused an international incident with Spain, which demanded that Paramount destroy the negative and cease distribution. As a result, von Sternberg soon was looking for another studio. The eccentric director then joined Columbia to direct *Crime and Punishment* (1935), for which Ballard was named director of photography. The picture, featuring Peter Lorre and Edward Arnold, was visually magnificent, but a financial catastrophe. Von Sternberg and Ballard teamed again for *The King Steps Out* and Ballard photographed two other high budget pictures, *Craig's Wife* (1936) and *The Devil's Playground* (1937). Then, for several years, he was relegated to the low-budget unit headed by Irving Briskin. There he photographed 14 features. As a contractee, he was assigned between features to the two-reel comedy unit, photographing the semi-improvised antics of Charlie Chase, the Three Stooges and other comedy stars. On *The Shadow* (1937), with the young Rita Hayworth, he was teamed with director C. C. Coleman Jr., with whom he worked on four subsequent films.

There were some bright spots during this stint. *Penitentiary* (1938), one of the studio's better B products, was directed by the German emigre, John Brahm, whose somewhat expressionistic visual ideas found an ideal interpreter in Ballard. A

second teaming with Brahm was the bigger budget *Let Us Live!* (1939), with Henry Fonda and Maureen O'Sullivan. Another good Columbia was *Blind Alley* (1939), directed by Charles Vidor, an unusual gangster yarn which proved highly influential several years later when psychological thrillers came belatedly into fashion.

In 1941, Brahm and Ballard moved to 20th Century-Fox, where they made *Wild Geese Calling*, an artistic frontier drama with Henry Fonda and Joan Bennett, followed by *The Undying Monster* (1942), whose superb images are reminiscent of the best German art films of the 1920s. He later worked with Brahm on *Tonight We Raid Calais* (1943) and the celebrated *The Lodger* (1944) one of the truly distinctive director-cinematographer collaborations in black and white. In 1945 he married Merle Oberon, star of *The Lodger*, whom he also photographed in *This Love of Ours* (1945), *Temptation* (1946), *Night Song* (1947), and the first American feature shot in post-war Germany, *Berlin Express* (1948). They were divorced in 1949.

Highlights of his career at Fox included *The House on Telegraph Hill* (1951), *Don't Bother to Knock* (1952), *Inferno* (1953) – his first Technicolor and only 3-D film, *Prince Valiant* (1954) – his first CinemaScope production, and *The Magnificent Matador* (1955).

In 1956 he began free-lancing, working on both major studio and independent productions, including *The Killing* (1956), *Buchanan Rides Alone* (1958), *Al Capone* (1959), and the exceptional *Ride the High Country* (1962), truly a Western for the connoisseur. The acclaim for the latter led to such famous frontier epics as *The Sons of Katie Elder* (1965), *Nevada Smith* (1966), *Hour of the Gun* (1967), *Will Penny* (1968), *The Wild Bunch* (in Panavision 70) and *True Grit* (both 1969), *The Battle of Cable Hogue* (1970), and *Junior Bonner* (1972). △



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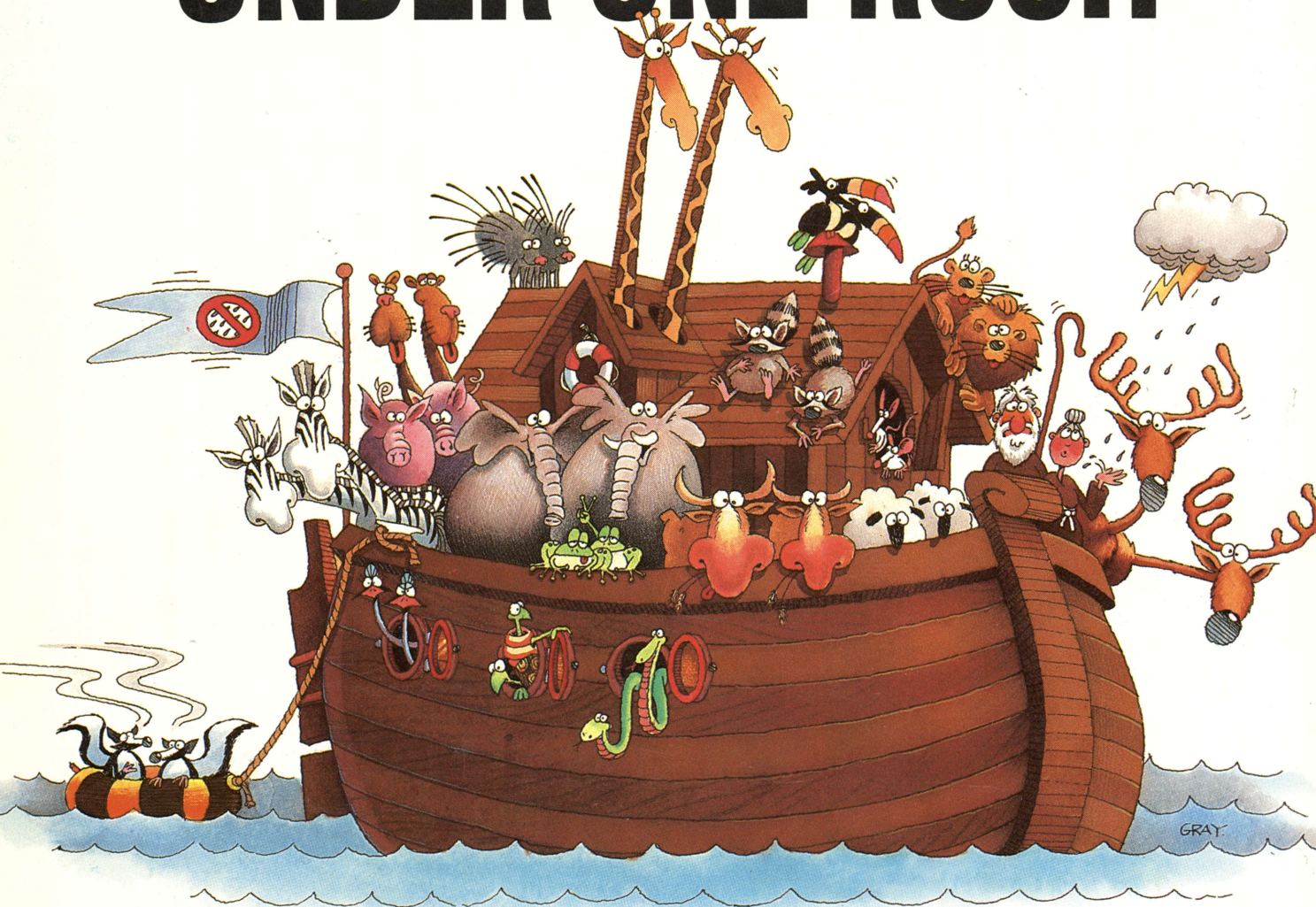


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